



**SR-252/Logan 1000 West  
Corridor Improvement Project  
Cache County, Utah**

**Final State Environmental Study  
And  
Decision Document**

**Utah Department of Transportation  
UDOT Project No: S-0252(6)0  
Pin: 6457**

**May 2010**



# **SR-252/Logan 1000 West Corridor Improvement Project**

**Cache County, Utah**

## **Decision Document**

**Utah Department of Transportation  
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**MAY 2010**





## **1.0 PROJECT DESCRIPTION**

A State Environmental Study (Study) has been prepared in accordance with Utah Department of Transportation (UDOT) Policy 08A2-4 (March 11, 2009), to evaluate the existing and future transportation conditions for State Route 252 (SR-252) in Cache County, Utah. A nearly 7-mile-long regional arterial corridor, SR-252 provides for traffic flows to and from North Logan, Logan, unincorporated areas to the west, as well as neighboring communities such as Nibley and Providence. The corridor extends along 1000 West Street in Logan from the intersection of 1000 West Street and U.S. Highway 89/91 (US-89/91), which is the southern terminus. From there it extends to 2500 North Street and continues east on 2500 North Street to the intersection of 2500 North Street and US-91, the northern terminus.

In June 2008 the State of Utah executed a Corridor Agreement with Logan City, North Logan City, and Cache County (Corridor Agreement) to change the 1000 West Street roadway from local ownership to State control. The Corridor Agreement stated that the ownership transfer, which created SR-252, was based on the desire to improve traffic flow, improve safety, identify future traffic signal installations, and locate major access points.

## **2.0 PURPOSE AND NEED**

Upon completion of the Corridor Agreement, UDOT determined that the existing roadway did not meet State design and operational standards. The purpose of this project is to bring the corridor into conformance with State design and operational standards while remaining sensitive to the social, natural, and built environment of the corridor. Project needs include improvements to:

- Capacity
- Safety
- Roadway Infrastructure

Roadway capacities for some segments of the corridor were currently determined to be failing using the standard Level of Service (LOS) traffic modeling classification. The LOS classification system ranks roadway segments and intersections on a scale from A to F; UDOT policy calls for design year traffic modeling to provide a minimum LOS D for all project segments and intersections. By the design year 2030, traffic modeling determined that most of the SR-252 corridor will be below the acceptable LOS. Also by the design year, 5 of the 11 major intersections will operate at failing LOS during peak hours.

The corridor currently exhibits safety deficiencies including vehicular turning conflicts, sidewalk deficiencies (especially in the vicinity of Woodruff Elementary School between 600 South and 200 South), and numerous utilities located within the clear zones.

Existing pavement conditions and drainage collection facilities are insufficient to provide for existing and future conditions and both need to be upgraded. Large sections of the corridor on the south end have deteriorating pavement and/or unpaved shoulders. Drainage deficiencies

include inadequate collection and conveyance facilities that result in localized ponding as well as runoff onto properties adjacent to the roadway. Curb and gutter facilities are not continuous along the corridor.

## **3.0 ALTERNATIVES**

### **3.1 Alternatives Development**

To address the needs of the project, the following alternatives were developed:

***The No-Build Alternative.*** Under the No-Build Alternative, no improvements to the corridor would be made other than routine maintenance within the existing right-of-way (ROW). It is assumed all other improvements on the long range plan would be built.

***The Three-Lane Alternative.*** The typical cross section evaluated for the Three-Lane Alternative was 73 feet wide. This cross section would provide one 12-foot travel lane in each direction with a continuous 12-foot turning median and 10-foot paved shoulders. The cross section also includes curb and gutter and a 6-foot sidewalk on both sides of the corridor.

***The Five-Lane Alternative.*** The typical cross section evaluated for the Five-Lane Alternative was 110 feet wide. This cross section has two 12-foot travel lanes in each direction with a continuous 12-foot turning median and 10-foot paved shoulders. The cross section also includes curb and gutter, 5-foot sidewalks, and 5-foot park strip planting areas on both sides of the corridor.

### **3.2 Alternatives Screening Summary**

The No-Build Alternative does not meet the purpose and needs of the project. The No-Build Alternative serves as a baseline for comparison and was kept to aid the decision-makers in comparing the environmental effects of the build alternative.

The Three-Lane Alternative could not meet the project needs for roadway or intersection capacity for the design year 2030. Also, the Three-Lane Alternative would not meet the need to place aboveground utilities outside the clear zone in narrower sections of the corridor. Therefore, the Three-Lane Alternative was dismissed from further consideration.

The Five-Lane Alternative could meet both roadway and intersection capacity needs, providing a minimum LOS D or better throughout the corridor and at all major intersections. While the cross section for this alternative did not meet the need for continuous sidewalks outside the 22-foot buffer in the Woodruff Elementary School neighborhood, design refinements of the alternative in the area could potentially accommodate this need. Therefore, the Five-Lane Alternative was advanced for further consideration and refinement.

## **3.3 Refinement of the Five-Lane Alternative**

### **3.3.1 Context Constraints**

After determining that the corridor would require five lanes to address capacity needs, further evaluation was conducted to assess how the 110-foot cross section for the Five-Lane Alternative would address the context constraints that were identified through the public and agency involvement process. These context constraints include the following:

1. Limit ROW acquisition of existing commercial development, including structures and parking.
2. Limit ROW acquisition of existing residential properties.
3. Accommodate pedestrian activity with minimum 22-foot buffering in the section of the corridor near the Woodruff Elementary School where school children walk.
4. Avoid any acquisition of a designated Agricultural Protection Area (APA) located on the west side of 1000 West Street from approximately 1000 South to 600 South Street.
5. Limit historic property acquisition.
6. Limit impacts to jurisdictional wetlands.

### **3.3.2 99-foot Cross Section Refinement**

To meet the context constraints, UDOT reduced the 110-foot cross section to a 99-foot cross section by eliminating park strips and locating the sidewalk against the curb and gutter to limit impacts to adjacent properties.

After determining that the 99-foot cross section addressed the project needs, an evaluation was conducted on the context constraints. The 99-foot cross section would reduce commercial property acquisition by over 6 acres and would reduce residential property takes by 1.5 acres. The ability to minimize ROW acquisition would substantially reduce commercial building takes from seven structures to only one structure. Acquisition of residential properties would also be reduced from 16 homes to 12 homes. Impacts to the APA would be reduced by 0.33 acres and the farm outbuilding would remain. Permanent impact to wetlands would be reduced by 1.4 acres. Both the 110-foot and 99-foot cross section would require the complete take of the same three eligible historic properties. The only disadvantage of the 99-foot cross section over the 110-foot was that the pedestrian sidewalk buffer in the Woodruff Elementary School neighborhood would be reduced from 18.5 feet to 12.5 feet.

### **3.3.3 Woodruff Elementary School Refinement**

Further refinement was needed of the 99-foot cross section because it would not meet the pedestrian safety concern within the Woodruff Elementary School neighborhood between 600 South and 200 South Street and because it did not eliminate ROW acquisition within the APA.

In addition to the 99-foot cross section, an even narrower option was considered for the Woodruff Elementary School neighborhood that included five lanes within an 85-foot cross section. This narrower option would eliminate the need to acquire any homes within the Woodruff Elementary School neighborhood. Such a narrower cross section would eliminate the acquisition of properties considered eligible for the National Register of Historic Places. However, any cross section narrower than 99 feet compromises other roadway features, particularly paved shoulder width and consistent right-turning lanes at intersections. Narrower cross sections would constrain maintenance activities, especially the ability for snow removal/storage. Most importantly, such a narrow cross section would substantially reduce the child pedestrian buffering to only 6.5 feet from the travel lanes.

Although an 85-foot cross section would not meet project needs throughout the corridor, it was presented to the public as a possible alternative that would minimize encroachment on residential properties and would not require the acquisition of any homes. Extensive input from affected property owners between 600 South and 200 South Street indicated opposition to any reduced cross section that placed the sidewalks used by Woodruff Elementary School children close to the vehicle travel lanes. Public concern resulted in the Logan City Council expressing their commitment to a wider cross section that would provide greater pedestrian buffering than the 85-foot and 99-foot cross sections.

Because of the context-sensitive constraints in the Woodruff Elementary School neighborhood and the commitment of Logan City to address the pedestrian safety concerns of the neighborhood, cross sections that would not support sidewalks outside the 22-foot buffer were dismissed from further consideration for the Woodruff Elementary School neighborhood. This included the 99-foot refinement alternative.

Attention then turned to developing wider cross sections to address the need of implementing sidewalks outside of the established 22-foot buffer. Prior to looking at wider cross sections, efforts were made to develop off-corridor pedestrian access to Woodruff Elementary School.

Off-corridor access already exists for neighborhood areas to the south of the Woodruff Elementary School. An attempt was made to design similar off-corridor access to the school for residential areas to the north of the school. No internal pathways exist in this area. The residential homes were constructed with mixed parcel size and no common areas for such development. Parcels within these areas are not laid out in a consistent pattern conducive to developing a continuous internal pedestrian network. Any such network would require ROW acquisition from a large number of property owners. The concept was discussed at the neighborhood meetings and working groups. Because of the privacy concerns and loss of property, this concept had no support from the local community.

Because off-corridor pedestrian access to the school could not be implemented, wider cross section designs were developed to meet the 22-foot pedestrian buffer. These alternatives were developed in coordination with Logan City, neighborhood and Woodruff Elementary School representatives, and were presented to the public.

A 124-foot cross section was developed to expand pedestrian buffering in the Woodruff Elementary School neighborhood (600 South to 200 South Street). The 124-foot section places elementary school pedestrians a buffered distance of 24 feet from the travel lanes on sidewalks and also allows for installation of landscaping enhancements outside the clear zone.

An evaluation was conducted as to the possibility of aligning this roadway alternative to the west side of the corridor, the east side, or centering the alignment on the existing roadway. Shifting the 124-foot cross section to the west was deemed preferable to other alignment shifts because the number of residences taken could be reduced from 26 to 17. Shifting to the west or centering would also avoid a small jurisdictional wetland impact (0.15 acres) that would occur if the alignment were shifted east. Three historically-eligible properties would be taken if the alignment were centered or shifted west. However, the loss of three historic properties was preferred as more practical than taking substantially more residences from the east side of the corridor.

The practicality of the 124-foot cross-section aligned to the west was further established when comparing residential property impacts with the 99-foot cross section. Although the 99-foot cross section would require five fewer residential acquisitions than the 124-foot cross section (12 vs. 17 homes); each of the remaining five homes on the west side would lose substantial ROW if the road was widened to 99 feet, with the roadway encroaching to within about 15 to 20 feet of the existing homes. The residential community expressed concern that the remaining five homes would be subjected to unnecessary proximity effects. Prior to presenting the 124- cross section to the public, it was reviewed by the Value Engineering Study Group. The results of the Value Engineering Study recommended that the remaining open space on the west side of SR-252 that would be created by ROW take could be used to construct a frontage road that would have the added benefit of eliminating three local roadways that currently intersect with SR-252.

The 124-foot refinement alignment with the frontage road was well received by the Logan City and Woodruff Elementary School neighborhood residents when presented at public meetings and working groups. The residents occupying the 17 homes that would be taken by this alternative were approached individually with the design and implications regarding their relocation. All 17 homeowners responded with a willingness to accept this alternative subject to reaching individual agreements on property acquisition during the standard ROW acquisition process.

### **3.3.4 Agricultural Protection Area (APA) Refinement**

A Cache County APA is located along the west side of the corridor between approximately 1000 South and 600 South Street. In this vicinity a minor modification to the 99-foot cross section was identified that would eliminate impacts to the APA. This modification was to only install sidewalk on the east side of the corridor for approximately 1,500 feet. Because the west side of the corridor in this vicinity is not planned for future development, it was determined that the need for sidewalk on the APA side was not necessary to accomplish the project need for continuous sidewalk in this instance.

### 3.4 The Proposed Action

The Proposed Action includes the following components:

- A 99-foot, five-lane cross section applied at all segments in the corridor, except where noted in specified segments:
  - A 124-foot, five-lane cross section with an associated frontage road in the Woodruff Elementary School neighborhood from 600 South to 200 South Street.
  - An 87- to 96-foot, five-lane cross section immediately south of 200 North Street for 700 feet.
  - A 94.5-foot, five-lane cross section in the immediate vicinity of the Cache County APA between 1000 South and 600 South Street. This modifies the 99-foot cross section by eliminating sidewalk on the west side of the corridor for 1,500 feet.
- Extension of the acceleration lane onto southbound US-89/91 westbound by approximately 750 feet.
- Closure of the intersection at 1100 West Street and US-89/91.
- Intersection and turning lane improvements at all major intersections on the corridor.
- New signal controls at the intersections of 1000 West Street with 1000 North Street and 1400 North Street.
- Future signal control at the intersections of 1000 West Street with US-89/91, 1600 South Street and 1800 North Street, and at the intersection of 2500 North Street and 600 West Street. Traffic signal installation would occur only when warranted by future traffic volumes.
- Future signal controls at the intersections of 1000 West Street with 200 South Street and 2500 North Street when they address Corridor Agreement requirements and are warranted by future traffic volumes.
- Continuous sidewalks meeting UDOT standards for design and location.
- Access control consistent with Category 4 requirements, as practicable based upon engineering and environmental constraints.
- Full-depth pavement section replacement meeting UDOT life cycle standards.
- Bridge widening at the Logan River from the existing 46 feet to 99 feet.



- Utility relocations and stormwater drainage system improvements meeting UDOT standards.

The SR-252 Proposed Action would be constructed in phases as funding is secured by UDOT. Current funding is anticipated to cover construction of areas on the south end of the corridor from US-89/91 to SR-30 (200 North Street) and on 2500 North Street from 600 West Street to US-91. Traffic signal installations at 1000 North Street and 1400 North Street are also expected to be installed during the initial construction phase.

## 4.0 PROJECT IMPACTS AND MITIGATION

Environmental resource impacts of the Proposed Action and mitigation requirements are summarized in Table 1. Details regarding how these impacts were determined are described in Chapter 3 of the Study.

**Table 1. Impacts of the Proposed Action and Identified Mitigation.**

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Land Use	Minimal property acquisition that would not adversely affect existing or future land use. Property acquisition would convert 2.86 acres of agricultural, 3.57 acres of commercial, and 6.65 acres of residential land use to transportation land use.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Farmlands	No impact to Federally protected farmlands and no impact to a County-designated APA.	No mitigation is necessary.
Social Environment	Seventeen residences would be taken and residents displaced. Housing is available in the area. Residents are in support of the widening as a Context-Sensitive Solution to child-pedestrian access through the neighborhoods. Access within and between neighborhoods would be maintained. Access to community institutions would be maintained. No disproportionate impacts to minority populations or low income populations would occur.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Relocations	Seventeen single-family residences would be relocated.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Visual and Aesthetics	Visual characteristics would not be affected. The wide landscaped park strips within the residential community would be a visual enhancement.	No mitigation is necessary.
Historical and Archaeological	Three residential properties determined eligible for the National Register of Historic Places would be acquired for ROW. This would be an adverse effect.	The UDOT, Utah State Historic Preservation Office (SHPO), and the Certified Local Governments are completing a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. Prior to any effect to the three historic properties, the mitigation required in the MOA will be implemented. If artifacts are discovered, contractor would be required to follow UDOT Standard Specification 01355, Part 1.13.

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Paleontological	No recorded paleontological localities occur on the corridor. No impact is anticipated.	If any fossils are found during construction an evaluation by a professional paleontologist will be conducted as described in UDOT Standard Specification 01355, Part 1.13.
Air Quality	Air quality impacts of the Proposed Action would be limited to potential for short-term increases in fugitive dust and vehicle emissions caused by construction activity.	Dust-control measures, per UDOT Standard Specification 01572, will be implemented. Mitigation measures will include developing and implementing a dust-control plan for all construction activities.
Traffic Noise	Forty-seven sensitive receivers would experience increases in noise levels for 2030 modeled traffic volumes that would be defined as noise impacts.	Although noise impacts would occur from traffic noise for some receivers by 2030, noise-abatement measures have been determined to be not feasible or reasonable and will not be implemented.
Surface Water	Impervious surface area would increase by 32.6 acres, generating greater stormwater volume. This would increase peak storm event flows. Receiving channels are not expected to be affected if outlets are protected. The Logan River Bridge widening would not affect river morphology or flow characteristics. No changes would occur at the Little Logan River crossing.	All outlets to existing streams or canals will be designed with attenuation to dampen discharge velocities as necessary to limit erosion and sedimentation. Flows into the Benson Canal will be coordinated with the canal company to provide appropriate discharge conditions. To eliminate scour in the streambeds of receiving waters, channel protection will be developed as necessary during final design. A Stream Alteration Permit will also be required for bridge construction at the Logan River.
Water Quality	Increases in surface runoff could transport additional pollutants, primarily sediment, total dissolved solids (often from road salt during winter), oils and floatable petroleum products, and metals to receiving water bodies including the Logan River and the Little Logan River. Other water quality impacts are associated with runoff from the road mixing with flows from the various irrigation canals and from other areas of Logan.	Using Best Management Practices (BMPs) from UDOT Manual of Instruction for Drainage and UDOT Standard Construction Specifications will help reduce the limited impacts of the Proposed Action to water quality. Any treatment will follow the Logan City stormwater design standards as permanent BMPs (Logan City 2009). Under these standards, treatment will address total suspended sediment and petroleum products. A Utah Pollution Discharge Elimination System stormwater construction permit and a Storm Water Pollution Prevention Plan (SWPPP) will be required. Best management practices will mitigate most construction-related impacts.



RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Floodplains	The only 100-year floodplain in the Project Area is at the Logan River. The Proposed Action would not increase the extent of existing road corridor transverse crossing of the 100-year floodplain. The crossing would be perpendicular to the floodplain (transverse crossing), thus having little effect on functional floodplain values. The hydraulic analysis shows that there would be no change in existing flow conditions nor would the structure create flow restriction. The bridge would be designed with sufficient freeboard (the distance between the water surface and the bottom of the bridge deck) so as not to increase the 100-year flood elevation upstream. The Proposed Action would result in additional fill of approximately 1.2 acres associated with road embankment. The additional fill adjacent to the existing corridor would not adversely affect the beneficial values of flood attenuation and desynchronization.	No mitigation is necessary.
Wetlands	The refined design would permanently impact 5.9 acres of jurisdictional wetlands. Construction activities would temporarily impact 2.66 acres of jurisdictional wetlands during equipment staging and access.	A Department of the Army Section 404 permit must be prepared and approved by the U.S. Army Corps of Engineers prior to construction. The approved Section 404 permit will specify required mitigation for impacted wetlands. Mitigation will require that permanently impacted wetlands be replaced and temporarily impacted wetlands be restored to pre-construction condition.
Threatened and Endangered Species	No listed species occur in the Project Area. No habitat for listed or candidate species would be affected.	No mitigation is necessary.
Wildlife and Fisheries	Potential temporary displacement of mule deer in Logan River area. No effect to raptors. Possible short-term sediment loading at Logan River could affect local brown trout.	A Utah Pollution Discharge Elimination System stormwater construction permit and a Storm Water Pollution Prevention Plan (SWPPP) will be required. Best management practices will mitigate most construction-related impacts. A required Stream Alteration Permit will specify necessary practices for protecting the Logan River and riparian zone. No other mitigation for wildlife or fisheries resources will be required.
Invasive Species	Construction activities have the potential to introduce or spread invasive weed species.	The construction contractor will be required to follow the UDOT Special Provision 02924S, "Invasive Weed Control."

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Hazardous Materials/ Contamination	Thirteen sites adjacent to SR-252 have recognized environmental conditions. There is no indication that any contamination related to hazardous material is present at any of these sites at levels that would impact the proposed construction operation or pose a risk to human health or the environment. All sites in the search area have been closed, have received site remediation, have had hazardous material removed, or are in compliance with regulations. The identified petroleum leak at the Flying J Gas Station (1905 South US-89/91) has been remediated and site closure is pending. Some residual petroleum may still occur within soil or groundwater. However, exposure for road construction is not expected to be a risk.	At any construction site, workers could encounter previously undocumented soil contamination or other hazardous waste. In such an event, the UDOT Standard Specification 01355, Part 1.6 requires that construction activity cease until the hazard is evaluated and appropriate protection measures are implemented. The required SWPPP will address secondary containment and spill response for fuels and any other chemicals used during construction.

## 5.0 COORDINATION

### 5.1 Key Meetings and Consultations

Key meetings and consultations are summarized here; complete details of coordination activities are described in Chapter 4, Appendix B, and Appendix C of the Study.

Consultation with the public, agencies, Native American tribes and bands, and other stakeholders has taken place throughout the Study process.

Public coordination has occurred through meetings with individual property and business owners, a project specific technical advisory committee, local governments, neighborhood council representatives, the Woodruff Elementary School Parent-Teacher Association, and public open house meetings (Table 2). In addition to these meetings, other methods of communication implemented during the process included newsletters, flyers, post cards, media releases, a project mailing list, a web page, a toll-free phone number, and language translators made available at public meetings.

**Table 2. Key Public Involvement Meetings.**

DATE	MEETINGS
April 2008	Introductory Technical Advisory Committee (TAC) meeting; Neighborhood Council meeting #1
May 2008	Initial public scoping meeting
May 2008	Local government meeting #1
September 2008	Local government meeting #2; TAC meeting #2
October 2008	Conceptual design public open house; Neighborhood Council meeting #2
March 2009	Ad-hoc residential area safety committee representative meeting
April 2009	Local government meeting #3; TAC meeting #3
May 2009	Westside residential area homeowners meeting #1
May 2009	Citizen-based design committee meeting
June 2009	Westside residential area homeowners meeting #2; TAC meeting #4
July 2009	Proposed design public open house
August 2009	1100 West intersection closure neighborhood meeting; TAC meeting #5
March 2010	Draft State Environmental Study public hearing

Agencies consulted during the Study process included the following:

- U.S. Army Corps of Engineers
- Federal Emergency Management Agency
- Federal Highway Administration
- U.S. Fish and Wildlife Service
- Natural Resources Conservation Service
- Utah Governor's Office of Economic Development
- Utah Governor's Office Resource Development Coordinating Committee
- Utah Division of Air Quality
- Utah Division of Drinking Water
- Utah Division of Environmental Response and Remediation
- Utah Division of Homeland Security
- Utah Division of Parks and Recreation
- Utah Division of Solid and Hazardous Waste
- Utah Division of State History
- Utah Division of Water Quality
- Utah Division of Water Resources
- Utah Division of Water Rights
- Utah Division of Wildlife Resources
- Cache Metropolitan Planning Organization
- Cache County
- City of Logan
- City of North Logan

Agencies with regulatory authority over relevant issues of concern for this project were the U.S. Army Corps of Engineers (Corps) and the Utah State Historic Preservation Officer (SHPO). Consultations with these agencies were ongoing throughout the Study process. Consultations with the Corps regarding wetlands impacts, Section 404 permitting, and mitigation have been ongoing throughout the project. A jurisdictional wetland determination was received on January 8, 2010. A Clean Water Act Section 404 Wetland Permit application has been initiated and has included pre-application meetings with the Corps.

As discussed in Section 3.6 of the Study, coordination with SHPO led to concurrence with the Determination of Eligibility and Finding of Effect (DOE-FOE) on November 25, 2009. A copy of the DOE-FOE is included in Appendix C of the Study. The DOE-FOE also describes consultations that were completed with the Certified Local Governments (CLG) and Native American tribes/bands. Based on the consultations, UDOT, SHPO, and the CLG are completing a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. Prior to any affect on historic properties, the mitigation required in the MOA will be implemented.

## 5.2 Public Involvement Issue Summary

Issues were derived from the early and continual public/agency coordination process. A public comment period on the draft State Environmental Study was held from March 1 to April 1, 2010. A public hearing on the draft State Environmental Study was held March 24, 2010. Fifty-four people attended the open house and hearing. Sixteen written comments were received during and as a result of the public hearing. Three commentators provided verbal comments to the court recorder present at the public meeting. No subsequent written comments were received during the public comment period. One written comment was received from the Utah Division of Water Rights. No other Federal, State or local government agency commented.

Key comments, and those frequently repeated, are summarized in Table 3 by general issue, which also includes responses to the comments. Chapter 4 of the final State Environmental Study includes all comments received and response to comments in their entirety. No comment resulted in any change to the draft Environmental Study other than the inclusion of comments and responses in Chapter 4.

**Table 3. Comments on the draft Environmental Study .**

COMMENT	RESPONSE
<b>General Comments</b>	
Complete frontage road first. Include additional buffer in residential area and at corner of 200 S. (1 comment.)	While phasing of construction activities are based upon a schedule provided by the construction contractor, it is anticipated that active coordination among the contractor, UDOT, and City of Logan will result in a schedule that balances the needs of the contractor, UDOT, City of Logan, SR-252 users, and adjacent residents.
Ensure snowplowing of sidewalks. (1 comment.)	The project's widened shoulder and roadway improvements will provide an additional area for snow removed from the roadway and sidewalks.
Provide early notice and information on home acquisition. (1 comment.)	Property acquisition will begin upon completion and UDOT approval of the State Environmental Document and will be completed prior to beginning construction activities. This process is anticipated to take up to 6 month providing time to coordinate relocations.
Communicate better with residents. (1 comment.)	The public has had various opportunities to review the project and the State Environmental Study and to provide comment. These opportunities have included open houses, public hearing, project website, and project newsletters. Please see Appendix B of the Environmental Study. Additional communication with property owners will continue and will provide any requested information or clarification.
<b>Drainage Design</b>	
Design proper drainage from east to west especially in vicinity of 200 S to 100 S. (3 comments.)	Roadway improvements to the existing drainage system north of 200 South Street are planned for this project. These improvements are intended to maintain the historical drainage flows in the area, while also providing improved function by lowering the pipes' flowline elevation. These upgrades will improve the overall function of the drainage and irrigation conveyances.

COMMENT	RESPONSE
<b>Intersection Design</b>	
Anticipated congestion at 200 South and 1000 West intersection requires installation of traffic signal. (4 comments.)	At present the current 200 South Street intersection does not meet required warrants for installation of a traffic signal. Future installation of a traffic signal at 200 South Street is dependent upon compliance with conditions of the SR-252 corridor agreement and meeting traffic signal warrant analysis according to state law and policy.
Existing signal at 600 South needs a designated left turn. (1 comment.)	At present the current 600 South Street intersection does not meet required warranting for installation of a left turn arrow. Future installation of a possible left turn traffic signal phase at 600 South Street would be dependent upon meeting requirements of a future signal warrant analysis.
Provide adequate approach for large trucks at 1100 South. (1 comment.)	The wider roadway shoulder, improved roadway edge conditions and reconstructed driveway surfacing will provide additional function in the use of this access. It is also intended to maintain the original width of this access.
<b>Property Infrastructure</b>	
Maintain or improve existing fences and gates that may be affected by project implementation. (3 comments.)	All fences removed or impacted due to roadway improvements are planned to be replaced with the UDOT standard ROW fences or a fence type that is equivalent to an existing fence. All existing fences needing replacement that do not meet the UDOT standards will be addressed ROW agreements with individual owners being compensated to replace their own unique fence type.
Maintain existing well and irrigation facilities and operations. (4 comments.)	Construction impacts to utilities and features, such as existing wells and irrigation features, will be coordinated with the appropriate utility company, controlling agency, or the property owner as to services or operation.
Maintain existing parking for residents. (1 comment.)	The proposed driveway improvements will provide appropriate area (length and width) to address this concern.
<b>Property Access</b>	
Maintain or provide access for cattle trucks and cattle movements. (4 comments.)	Each existing access has been reviewed for function and use in relation to operation and safety. The wider roadway shoulder, improved roadway edge conditions and reconstructed driveway surfacing will provide additional functional use of these accesses. It is also intended to maintain the original width of reconstructed or relocated accesses in this area. Current width under the Logan River bridge will not be widened to accommodate cattle, because the State is required by law to limit any impacts on riparian environment, reiver channel, or wetlands to those required to meet the project purpose and need.
Provide proper design for large truck access to business at 450 W. 2500 N. (1 comment.)	Driveway access will be modified to center on the structure's garage door. This will be completed during the final design phase, and coordinated with the property owner as part of the ROW process.
Proper design of new driveway access to residence. (1 comment.)	Final location of the relocated drive access and cross lot irrigation will be coordinated as part of the property acquisition and ROW process. Construction of the new driveway access will be coordinated with the owner during final design.
<b>Safety</b>	
Unexpected vehicle speeds on proposed frontage road could lead to vehicle crashes into homes. (1 comment.)	The design team will investigate incorporation of T-intersection signage behind the sidewalk on the southerly side of 600 South Street along with the inclusion of a privacy style chain link fencing to better alert any drivers as the termination of the frontage road onto 600 South. Additionally, the planned roadway surfacing improvements, curb, gutter, and sidewalk installed on the south side of 600 South Street are expected to provide an added measure of physical separation of vehicles and the subject property.
<b>Noise</b>	
Noise abatement wall is desired between 600 S and 200 S even if a variance or waiver of state policy and city ordinance is required. (2 comments.)	Based upon the UDOT Noise Policy, a noise wall is not feasible or prudent at this location. As part of this policy, noise barriers will be consistent with local ordinances restricting wall height of 8 feet in height. Logan City's standard for wall height in residential zones adjacent to arterial or collector streets is 6 feet. UDOT has no authority regarding variances to local city ordinances.
City of Logan needs to implement large truck engine brake ordinance. (1 comment.)	UDOT has no authority regarding establishment of local ordinances. Enforcement and implementation of City of Logan ordinances are beyond the scope of this project.

COMMENT	RESPONSE
	<b>Logan River Bridge Crossing</b>
Utah Division of Water Rights expressed concern that the bridge over the Logan River was designed too large and the width could be reduced to minimize effect on the river corridor.	The design incorporates a center lane consistent with either side of the bridge, and is necessary for safe turning movements for access points immediately north and south of the bridge. Sidewalks are required for pedestrian accessibility and safety. Separated pedestrian bridge would cause additional riparian impacts. Shoulders are needed for safety and snow storage.

## 6.0 DETERMINATION

The UDOT approves the selection of the Five-Lane Alternative with refinements (Proposed Action) as described.

The Proposed Action was developed through a public process that included refinements to avoid and minimize environmental impacts while still meeting the context sensitive constraints in the project area. The UDOT has determined that the Proposed Action best meets the transportation needs while effectively considering environmental, safety, and socioeconomic factors. The UDOT has considered all of the issues raised in the record including the information contained in (and comments to) the draft and final State Environmental Studies while making this decision.

  
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Randy Park, Project Development Director

5/17/10  
Date





# **SR-252/Logan 1000 West Corridor Improvement Project**

**Cache County, Utah**

## **Final State Environmental Study**

**Utah Department of Transportation  
UDOT Project No: S-0252(6)0  
Pin: 6457**

**May 2010**



# SUMMARY OF ISSUES, IMPACTS, AND MITIGATION

## Public Involvement Issue Summary

Comments and input stemming from the project public involvement activities can be generally summarized within the following issue categories.

ISSUE	SUMMARY OF PUBLIC COMMENT	RESULTANT ACTION
<b>Issues and concerns resolved by the Proposed Action</b>		
Improve pedestrian and vehicular safety on the corridor	Primary concerns are expressed for pedestrian safety within the residential portion of the corridor.	Typical cross section widened to 124 feet, providing wider park strips and paved shoulders as buffers between roadway and sidewalk. Additionally, planned closure of the intersection of 1100 West Street with U.S. Highway 89/91 (US-89/91) would improve safety on the acceleration lane coming from State Route 252 (SR-252) onto US-89/91. Along the SR-252 corridor, utility features would be moved farther from the roadway creating additional safety benefits.
Provide pedestrian walkways	The general consensus is to have a continuous sidewalk on at least one side throughout the corridor.	Initial construction plans include a sidewalk on at least one side of the roadway throughout, and full future build-out plans for sidewalks on both sides of the roadway.
Improve traffic flow	Provide for better turning opportunity, less delay and better intersections.	A widened, five-lane section including a continuous turning median is proposed. Intersection improvements are planned at key intersections including 1000 North Street, 1400 North Street and 2500 North/US-91.
Include aesthetic improvements	Primary concern in the residential area is to implement Context Sensitive Design elements consistent with a Logan City residential area.	Landscaping plans would be consistent with City of Logan landscaping guidelines within the larger buffer areas from 600 South to 200 South Street to the extent they remain consistent with UDOT Project Aesthetics Policy (08A1-3).
Improve safety and accessibility onto and off the corridor	Provide for better and safer access to private properties abutting the corridor.	Proposed access modifications shown in Appendix A are the result of extensive on-site coordination with property owners. In the residential area, a frontage road adjacent to SR-252 would reduce turning conflicts, improving safety within this area of public concern.
<b>Issues and concerns that cannot be addressed or resolved by the Proposed Action</b>		
Speed limits	There is a desire to retain existing speed limits along the corridor.	The project does not propose to change speed limits, although future speed studies could recommend changes based upon actual conditions.
Pedestrian crossing at Three Points Avenue intersection	There is a desire for a controlled or grade-separated crossing at Three Point Avenue.	Analysis showed that pedestrian crossings were less than half that necessary to meet warrants. No crossings are planned for safety reasons.
Noise	There are concerns over anticipated noise conditions.	Although noise impacts would occur for some residences, it was determined that noise walls would be ineffective as mitigation because of the number of breaks in a wall that would be necessary for access roadways. Additionally, local ordinances for wall heights would not provide for sufficient noise reduction, as specified in UDOT's noise abatement policy.

## Environmental Resource Impacts and Mitigations

Known or potential environmental resource impacts of the Proposed Action and mitigation requirements are summarized here. Details regarding how these impacts were determined are described in Chapter 3 of this document.

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Land Use	Minimal property acquisition that would not adversely affect existing or future land use. Property acquisition would convert 2.86 acres of agricultural, 3.57 acres of commercial, and 6.65 acres of residential land use to transportation land use.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Farmlands	No impact to Federally protected farmlands and no impact to a County-designated Agricultural Protection Area.	No mitigation is necessary.
Social Environment	Seventeen residences would be taken and residents displaced. Housing is available in the area. Residents are in support of the widening as a Context-Sensitive Solution to child pedestrian access through the neighborhoods. Access within and between neighborhoods would be maintained. Access to community institutions would be maintained. No disproportionate impacts to minority populations or low income populations would occur.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Relocations	Seventeen single-family residences would be relocated.	All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
Visual and Aesthetics	Visual characteristics would not be affected. The wide landscaped park strips within the residential community would be a visual enhancement.	No mitigation is necessary.
Historical and Archaeological	Three residential properties determined eligible for the National Register of Historic Places would be acquired for right-of way. This would be an adverse effect.	Utah Department of Transportation (UDOT), Utah State Historic Preservation Office (SHPO) and the Certified Local Governments are completing a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. Prior to any effect to the three historic properties, the mitigation required in the MOA will be implemented. If artifacts are discovered, contractor would be required to follow UDOT Standard Specification 01355, Part 1.13.
Paleontological	No recorded paleontological localities occur on the corridor. No impact is anticipated.	If any fossils are found during construction an evaluation by a professional paleontologist will be conducted as described in UDOT Standard Specification 01355, Part 1.13.

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Air Quality	Air quality impacts of the Proposed Action would be limited to potential for short-term increases in fugitive dust and vehicle emissions caused by construction activity.	Dust-control measures, per UDOT Standard Specification 01572, will be implemented. Mitigation measures will include developing and implementing a dust-control plan for all construction activities.
Traffic Noise	Forty-seven (47) sensitive receivers would experience increases in noise levels for 2030 modeled traffic volumes that would be defined as noise impacts.	Although noise impacts would occur from traffic noise for some receivers by 2030, noise-abatement measures have been determined to be not feasible or reasonable and will not be implemented.
Surface Water	Impervious surface area would increase by 32.6 acres, generating greater stormwater volume. This would increase peak storm event flows. Receiving channels are not expected to be affected if outlets are protected. The Logan River Bridge widening would not affect river morphology or flow characteristics. No changes would occur at the Little Logan River crossing.	All outlets to existing streams or canals will be designed with attenuation to dampen discharge velocities as necessary to limit erosion and sedimentation. Flows into the Benson Canal will be coordinated with the canal company to provide appropriate discharge conditions. To eliminate scour in the streambeds of receiving waters, channel protection will be developed as necessary during final design. A Stream Alteration Permit will also be required for bridge construction at the Logan River.
Water Quality	Increases in surface runoff could transport additional pollutants, primarily sediment, total dissolved solids (TDS) (often from road salt during winter), oils and floatable petroleum products, and metals to receiving water bodies including the Logan River and the Little Logan River. Other water quality impacts are associated with runoff from the road mixing with flows from the various irrigation canals and from other areas of Logan.	Using Best Management Practices (BMPs) from UDOT Manual of Instruction for Drainage and UDOT Standard Construction Specifications will help reduce the limited impacts of the Proposed Action to water quality. Any treatment will follow the City of Logan stormwater design standards as permanent BMPs (Logan City 2009). Under these standards, treatment will address total suspended sediment and petroleum products. A Utah Pollution Discharge Elimination System stormwater construction permit and a Storm Water Pollution Prevention Plan (SWPPP) will be required. Best management practices will mitigate most construction-related impacts.
Floodplains	The only 100-year floodplain in the Project Area is at the Logan River. The Proposed Action would not increase the extent of existing road corridor transverse crossing of the 100-year floodplain. The crossing would be perpendicular to the floodplain (transverse crossing), thus having little effect on functional floodplain values. The hydraulic analysis shows that there would be no change in existing flow conditions nor would the structure create flow restriction. The bridge would be designed with sufficient freeboard (the distance between the water surface and the bottom of the bridge deck) so as not to increase the 100-year flood elevation upstream. The Proposed Action would result in additional fill of approximately 1.2 acres associated with road embankment. The additional fill adjacent to the existing corridor would not adversely affect the beneficial values of flood attenuation and desynchronization.	No mitigation is necessary.

RESOURCE	IMPACTS OF THE PROPOSED ACTION	MITIGATION
Wetlands	The refined design would permanently impact 5.9 acres of jurisdictional wetlands. Construction activities would temporarily impact 2.66 acres of jurisdictional wetlands during equipment staging and access.	A Department of the Army Section 404 permit must be prepared and approved by the U.S. Army Corps of Engineers prior to construction. The approved Section 404 permit will specify required mitigation for impacted wetlands. Mitigation will require that permanently impacted wetlands be replaced and temporarily impacted wetlands be restored to pre-construction condition.
Threatened and Endangered Species	No listed species occur in the Project Area. No habitat for listed or candidate species would be affected.	No mitigation is necessary.
Wildlife and Fisheries	Potential temporary displacement of mule deer in Logan River area. No effect to raptors. Possible short-term sediment loading at Logan River could affect local brown trout.	A Utah Pollution Discharge Elimination System stormwater construction permit and a Storm Water Pollution Prevention Plan (SWPPP) will be required. Best management practices will mitigate most construction-related impacts. A required Stream Alteration Permit will specify necessary practices for protecting the Logan River and riparian zone. No other mitigation for wildlife or fisheries resources will be required.
Invasive Species	Construction activities have the potential to introduce or spread invasive weed species.	The construction contractor will be required to follow the UDOT Special Provision 02924S, "Invasive Weed Control."
Hazardous Materials/ Contamination	Thirteen sites adjacent to SR-252 have recognized environmental conditions. There is no indication that any contamination related to hazardous material is present at any of these sites at levels that would impact the proposed construction operation or pose a risk to human health or the environment. All sites in the search area have been closed, have received site remediation, have had hazardous material removed, or are in compliance with regulations. The identified petroleum leak at the Flying J Gas Station (1905 South US-89/91) has been remediated and site closure is pending. Some residual petroleum may still occur within soil or groundwater. However, exposure for road construction is not expected to be a risk.	At any construction site, workers could encounter previously undocumented soil contamination or other hazardous waste. In such an event, the UDOT Standard Specification 01355, Part 1.6 requires that construction activity cease until the hazard is evaluated and appropriate protection measures are implemented. The required SWPPP will address secondary containment and spill response for fuels and any other chemicals used during construction.

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**CHAPTER 1**  
**PURPOSE AND NEED**  
**FOR THE PROPOSED ACTION**





## **1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION**

This State Environmental Study (Study) has been prepared to evaluate the existing and future transportation conditions for State Route 252 (SR-252) in Cache County, Utah. In June 2008 the State of Utah executed a Corridor Agreement with Logan City, North Logan City, and Cache County (Corridor Agreement) to effect ownership change of the existing 1000 West Street roadway from local ownership to State control. The Corridor Agreement stated that the ownership transfer, which created SR-252, was based on the desire to improve traffic flow, improve safety, identify future traffic signal installations, and locate major access points.

The Study, prepared by the Utah Department of Transportation (UDOT), in conjunction with the municipalities of Logan City and North Logan City, identifies existing conditions and future conditions for the design year, 2030. The study assesses the potential impacts of alternatives and identifies feasible mitigation measures to minimize impacts. This information was prepared to assist local and state decision makers in identifying the best course of action for meeting the identified needs.

In accordance with UDOT Policy 08A2-4 (March 11, 2009), UDOT determined that a State “Type B” environmental study should be conducted based on a review of the background, scope, potential environmental issues, and potential for controversy for the proposed SR-252/1000 West Corridor Improvement Project (Project). The proposed improvements would be State funded and therefore do not require a Federal environmental study under regulations for the National Environmental Policy Act (40 CFR §1500-1508).

### **1.1 Background and Project Purpose**

#### **1.1.1 Background**

State Route 252 is a nearly 7-mile-long regional arterial corridor that provides for traffic flows to and from North Logan, Logan, unincorporated areas to the west, as well as neighboring communities such as Nibley and Providence. The corridor extends along 1000 West Street in Logan from the intersection of 1000 West Street and U.S. Highway 89/91 (US-89/91), which is the southern terminus. From there it extends to 2500 North Street and continues east on 2500 North Street to the intersection of 2500 North Street and US-91, the northern terminus. Figure 1-1 depicts the Project location.

The existing corridor varies in width of right-of-way (ROW), general land uses adjacent to the corridor, and level of development.

Most of the corridor serves existing or developing commercial or mixed-use communities ranging from areas with moderate levels of commercial development (200 South Street to 200 North Street) to areas almost fully developed (200 North Street to 1000 North Street). Partial commercial development continues from 1000 North Street to 1400 North Street and along 2500



Figure 1-1. Project location map.

North Street from 1000 West Street to US-91. The south portion of the Project from US-91 to 800 South Street is primarily undeveloped at present; although there is some continuing mixed-use development with commercial parcels south of the Logan River and some residential growth on the east side of the corridor between about 800 South Street and 1100 South Street. Areas of partial development are expected to be completely developed by the design year 2030. These areas have generally been built around a ROW width of 99 feet, with buildings and associated improvements based on this condition. Wetlands border the corridor in much of the area, especially in the vicinity of the Logan River.

From 1400 North Street to 2500 North Street the current land use is primarily agricultural. There are no current plans for development, but commercial and industrial development is anticipated based on the Logan City Master Plan. The ROW width through this area is 99 feet. Wetlands and pasture lands are adjacent and within the corridor through most of this segment.

There is a fully developed, medium-density residential community from approximately 800 South Street to 200 South Street. At intermittent intervals along SR-252, houses on both sides of the roadway have direct access to the corridor. Other homes back-face the corridor. The Woodruff Elementary School located on the Corridor at 600 South is a primary point of interest because the school serves the neighborhoods surrounding the corridor. The ROW width in this area is generally 80 feet.

### **1.1.2 Purpose**

Upon completion of the Corridor Agreement, UDOT determined that the existing roadway did not meet State design and operational standards. The purpose of the Project is to bring the corridor into conformance with state design and operational standards while remaining sensitive to the social, natural, and built environment of the corridor.

## **1.2 Transportation Needs**

In brief, deficiencies from state standards (Project needs) include the following:

- Capacity
- Safety
- Roadway Infrastructure

Detailed discussion and illustrations of the corridor deficiencies within each of these categories are included in the following three subsections of Chapter 1.

### **1.2.1 Capacity**

The existing SR-252 roadway is currently configured with the following general cross-section:

- ***US-89/91 to 800 South Street:*** two existing travel lanes and limited shoulder width. The existing ROW is 99 feet in all areas except near 800 South Street where it is 134 feet.

- **800 South Street to 200 South Street:** two travel lanes and limited shoulder width with turn lanes at 600 South. The existing ROW ranges between 80 to 84 feet in width.
- **200 South Street to 200 North Street (SR-30):** two existing travel lanes with limited shoulder width. The existing ROW width ranges from approximately 60 feet in most areas to 84 feet near 200 South Street.
- **200 North Street (SR-30) to 1000 North Street:** two travel lanes and center median with an additional southbound auxiliary lane at 1000 North Street, limited to approximately 300 feet south of the 1000 North Street intersection. The existing ROW width is 99 feet.
- **1000 North Street to 1400 North Street:** four travel lanes and a center turn median at 1000 North Street that tapers to two travel lanes approximately 1,000 feet north of the 1000 North Street intersection. The existing ROW width is 99 feet.
- **1400 North Street to 2500 North Street:** two travel lanes with limited shoulder width in this primarily undeveloped section of the corridor. The existing ROW width is 99 feet.
- **2500 North Street from 1000 West Street to US-91:** two travel lanes with an intermittent center median and limited shoulder width. The existing ROW width is 150 feet from 1000 West Street to 900 West Street, 85 feet from 900 West Street to 600 West Street and 99 feet from 600 West Street to US-91.

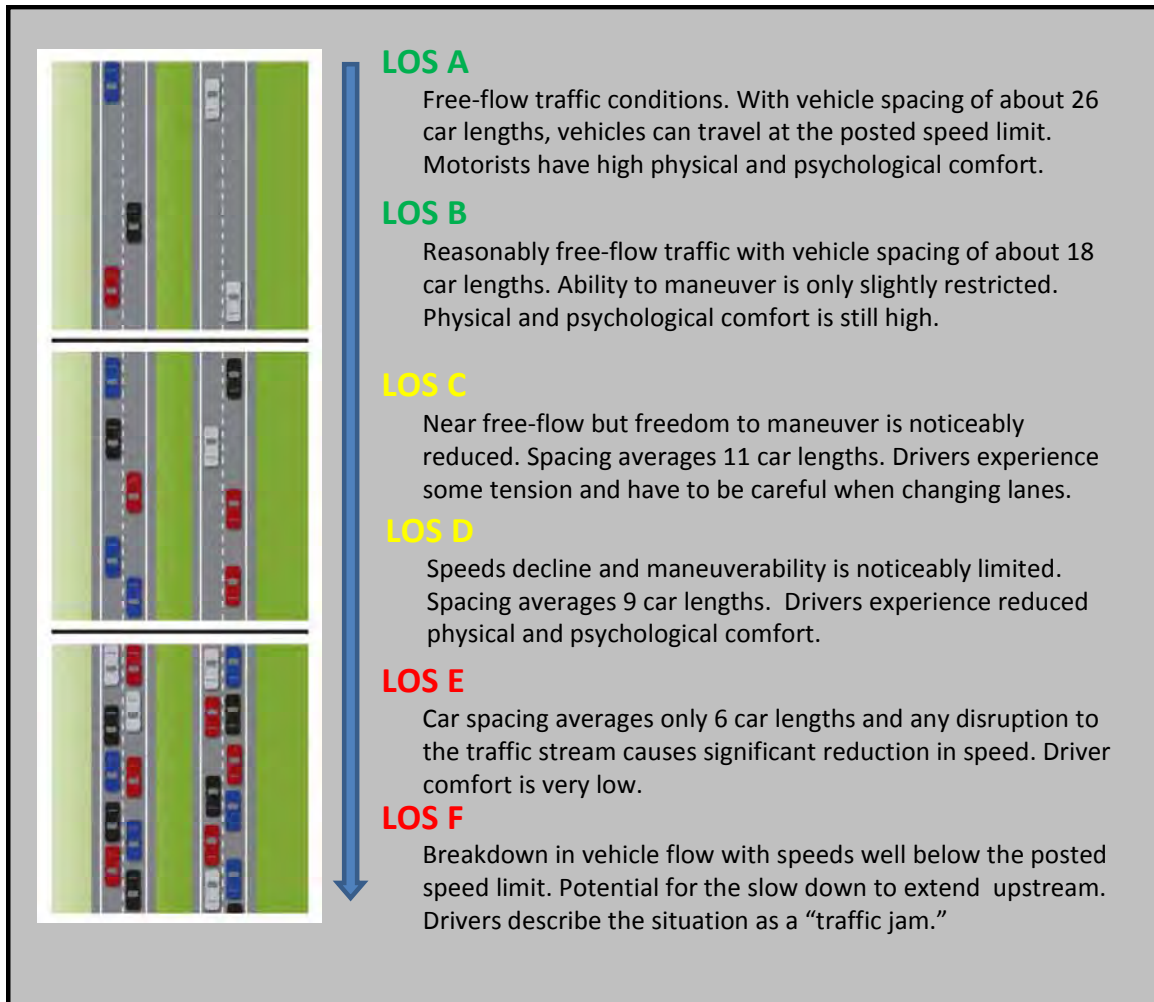
#### **1.2.1.1 Roadway Capacity**

Existing and anticipated future traffic volumes (for the design year 2030) were determined in a Traffic Engineering Report (Traffic Study) for the SR-252 corridor (UDOT 2008a, available at UDOT Region One offices for inspection). The existing roadway volumes were obtained from traffic counts and compared to the Cache Metropolitan Planning Organizations (CMPO) Travel Demand Model to ensure compatibility with area traffic planning data. For transportation planning purposes and ease of understanding, traffic volumes can be converted to a qualitative measure of congestion called Level of Service (LOS). Level of Service identifies six categories from A to F, with A having little or no congestion and F having significant congestion. The LOS categories are illustrated in Figure 1-2.

The traffic volume and the number of travel lanes in each direction to support the traffic volume are the primary factors in how the traffic volumes are converted to Level of Service. Generally two-lane roadways will experience failure conditions (LOS F) in the range of 13,000 to 15,000 vehicles per day.

**Existing Traffic Volumes and LOS.** The Traffic Study provided analysis of existing capacity and LOS conditions. As seen in Figure 1-3, the existing traffic volumes range from 7,200 Average Annual Daily Traffic (AADT) in the north portion of the corridor near 2500 North Street to 14,700 AADT near 600 North Street. Figure 1-4 illustrates the conversion of the current traffic data to LOS values for various sections of the corridor. Current traffic volumes translate into current failing LOS conditions (LOS F) in the sections from 200 South Street to 200 North Street (SR-30) as well as in the section from 400 North to 800 North.





**Figure 1-2. Level of Service (LOS) qualitative traffic volume category descriptions.**

**Roadway improvement criteria:**

*The UDOT has adopted a goal of providing a Level of Service D for a regional arterial corridor. Therefore, the corridor should provide a LOS D by the 2030 design year, to the extent practical given engineering and environmental constraints.*

**Future Traffic Volumes and LOS.** Future conditions were also modeled in the Traffic Study for the design year 2030 design. The modeled traffic volumes are shown in Figure 1-5. Traffic along the corridor is expected to approximately double by the year 2030 (compare Figure 1-3 and Figure 1-5). For example, the traffic volumes at about 600 North where traffic volumes are the highest is expected to increase from 14,700 to 30,600 AADT by the year 2030. This anticipated doubling in traffic will result in failing LOS conditions (LOS F) throughout a majority of the corridor if roadway capacity is not sufficiently increased (Figure 1-4).

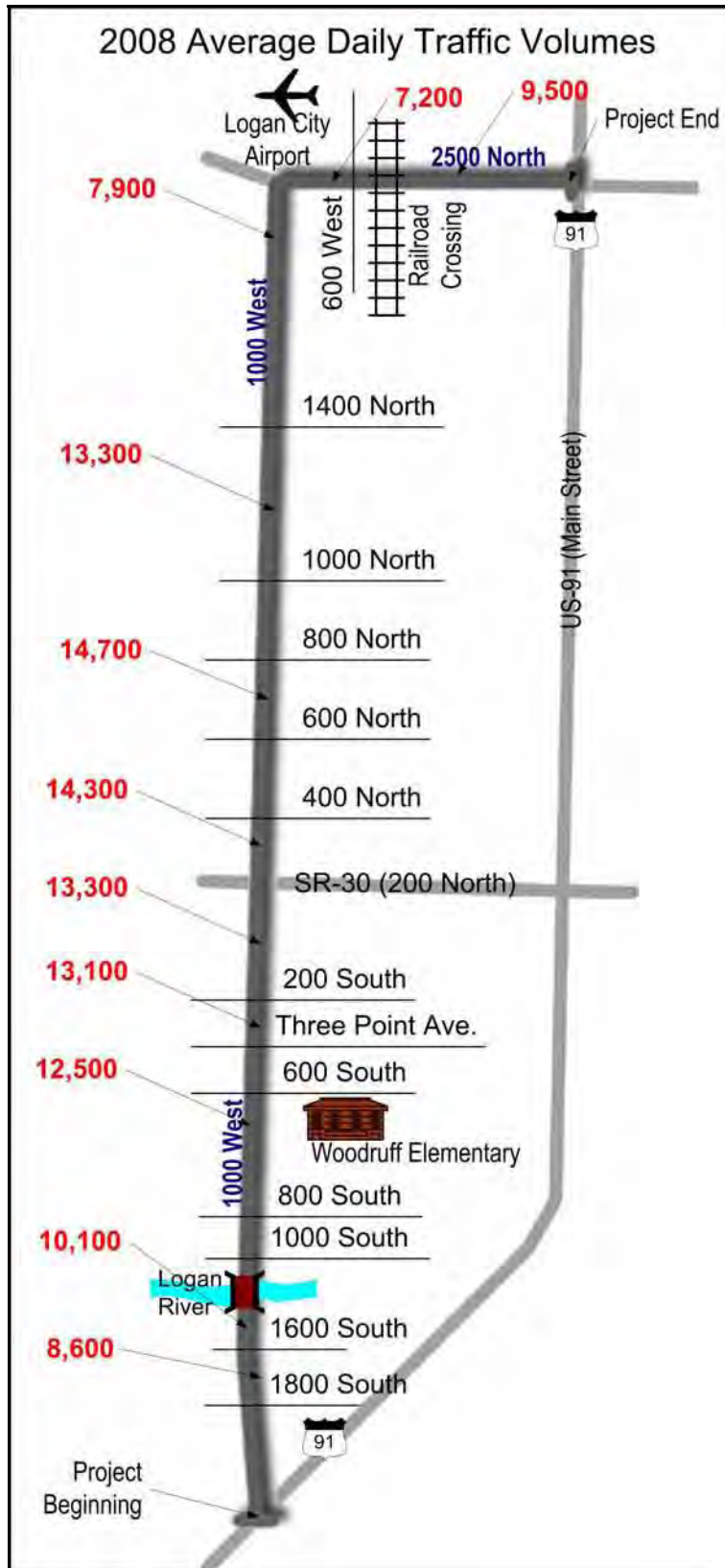


Figure 1-3. Average daily 2008 traffic volumes.

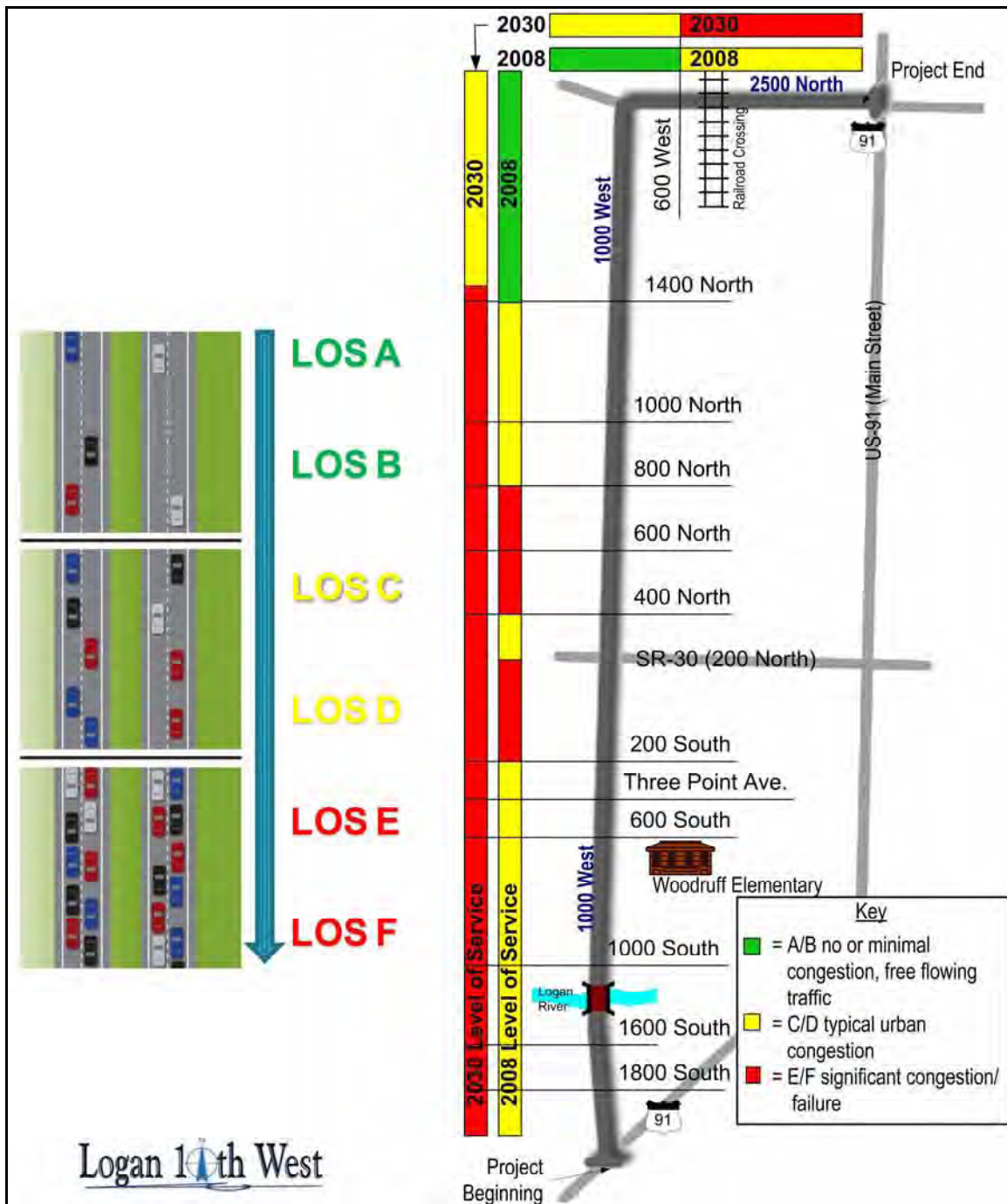
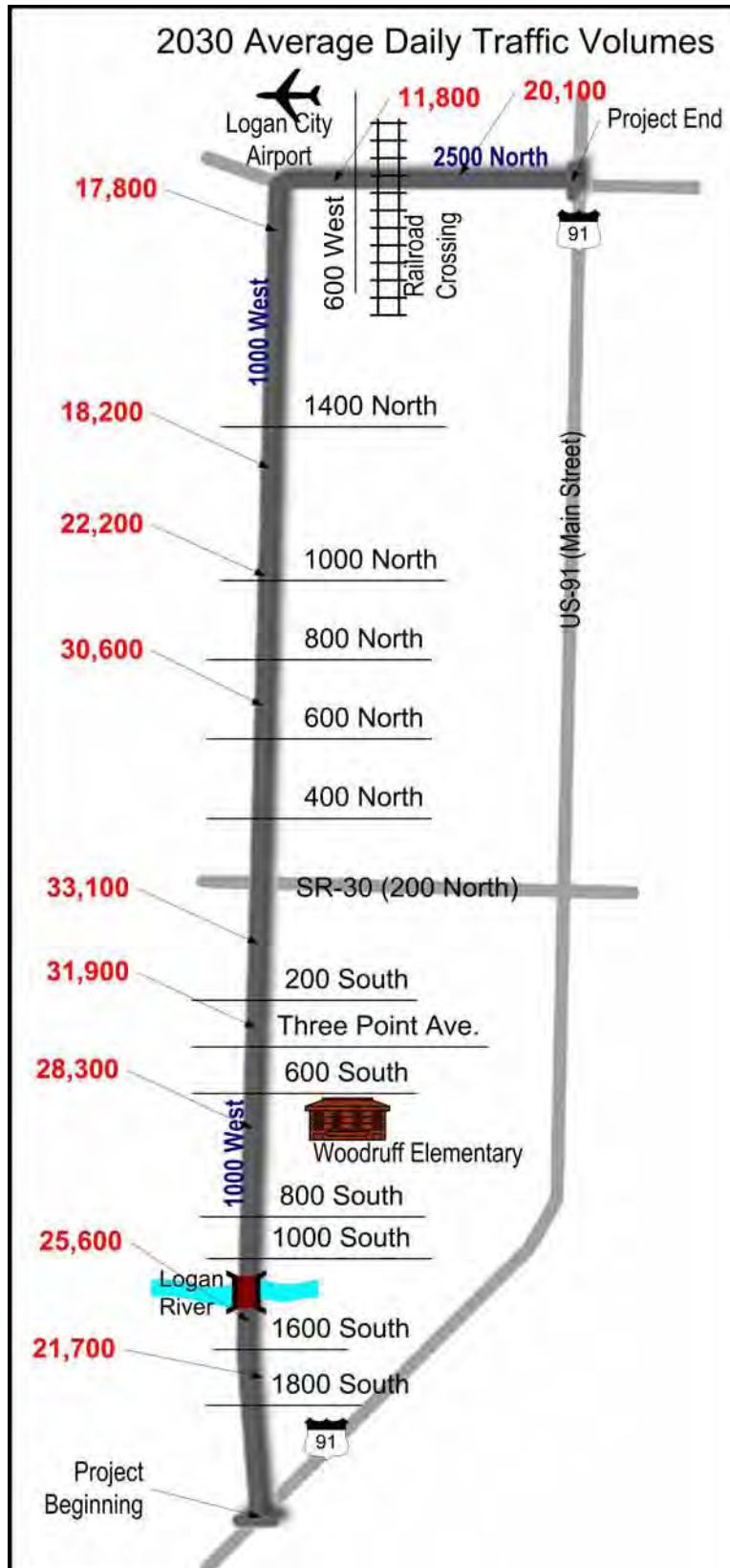


Figure 1-4. Level of Service (LOS), 2008 and 2030 No-Build.



**Figure 1-5. Average daily 2030 traffic volumes.**



### 1.2.1.2 Intersection Capacity

Intersection operations at major intersections, as defined in the Corridor Agreement were analyzed as part of the Traffic Study.

**Existing Intersections LOS.** The existing traffic volumes within the intersections were converted to a LOS value as shown in Table 1-1. Currently the major intersections function well or adequately, with the only exception being the afternoon peak hour conditions at 1000 West Street and 1400 North Street.

**Table 1-1. Existing intersection Level of Service (LOS) conditions.**

INTERSECTION	LEVEL OF SERVICE AM PEAK HOUR	LEVEL OF SERVICE PM PEAK HOUR	CURRENT INTERSECTION CONTROL
1000 West - US-89/91	B	C	Unsignalized
1000 West - 1600 South	C	C	Unsignalized
1000 West - 600 South	B	B	Signalized
1000 West - 200 South	D	D	Unsignalized
1000 West - 200 North	B	C	Signalized
1000 West - 1000 North	B	C	Unsignalized, currently warranted
1000 West - 1400 North	D	F	Unsignalized, currently warranted
1000 West - 1800 North	N/A	N/A	Proposed future intersection
1000 West - 2500 North	C	C	Unsignalized
2500 North - 600 West	B	C	Unsignalized
2500 North - US-91	B	C	Signalized

**Future Intersections LOS.** Traffic analysis and modeling completed within the Traffic Study indicates that many of the critical intersections will experience failing operational conditions in the 2030 design year as shown in Table 1-2.

Needed improvements as identified in Table 1-2 are based on actual traffic signal warrant conditions as defined by the *Manual of Uniform Traffic Control Devices* (MUTCD) and as further evaluated by the UDOT as part of official Warrant Studies.

#### **Intersection Improvement Criteria:**

*The UDOT has adopted a goal of providing a Level of Service D for a regional arterial corridor. Therefore the major intersections of the corridor should provide a LOS D by the 2030 design year, to the extent practical given engineering and environmental constraints.*

## 1.2.2 Safety

Safety deficiencies include: vehicular turning conflicts onto and off the corridor including the US-89/91 intersection with 1100 West Street; discontinuous pedestrian facilities and pedestrian facilities considered by the local residents as too close to travel lanes, especially in the vicinity of the Woodruff Elementary School; and utility facilities located within the clear zone.

**Table 1-2. Level of Service (LOS) conditions for 2030 Design Year Intersection.**

INTERSECTION	LEVEL OF SERVICE AM PEAK HOUR	LEVEL OF SERVICE PM PEAK HOUR	NEEDED INTERSECTION CONTROL
1000 West - US-89/91	F	F	Signalization when warranted
1000 West - 1600 South	C	C	Future signal
1000 West - 600 South	C	D	Signal improvements
1000 West - 200 South	F	F	Signalization when warranted in keeping with Corridor Agreement requirements
1000 West - 200 North	E	F	Signal Improvements
1000 West - 1000 North	C	D	Signalization, currently warranted
1000 West - 1400 North	E	F	Signalization, currently warranted
1000 West - 1800 North	B	B	Future signal
1000 West - 2500 North	B	C	Future signal in keeping with Corridor Agreement requirements
2500 North - 600 West	B	C	Future signal
2500 North - US-91	D	F	Signal improvements

### 1.2.2.1 Vehicular Turning Conflicts

Logan City's records for the corridor indicate a total of 1,108 incidents have occurred since 1991, including nine vehicle-pedestrian accidents and four vehicle-bicycle accidents. For planning purposes, accident severity is measured on a scale of 1–5, with 1 representing lowest severity and 5 representing a fatality. The severity of accidents along the SR-252 corridor averages 1.49, which is slightly higher than the expected average, 1.42, for a roadway of this type and capacity. Although the overall accident rate as identified by a UDOT Operational Safety Report (September 23, 2008) is 1.60, which is less than the expected value of 3.23, it was noted that most crashes occurred at intersections and places where there were no turning lanes.

Following the execution of the Corridor Agreement, the corridor is to be managed under an Access Management Category 4 as defined in Administrative Rule R930-6, *Accommodation of Utilities and the Control and Protection of State Highway Rights of Way* (2006). There are currently 185 driveway accesses and 18 minor intersections located along the corridor (199 total minor access locations). These existing 199 total access locations, which are separate from the major intersections, equate to a density of more than 28 access locations per mile. The standard under the Category 4 designation is 500 foot spacing or only 10 accesses per mile. This standard reduces conflict points along the regional corridor, thus minimizing potential accidents associated with these conflict points.

Another vehicular safety issue identified was the intersection of US-89/91 and 1100 West Street (southern terminus of SR-252). This intersection conflicts with the acceleration lane for traffic merging from southbound SR-252 onto westbound US-89/91 (Figure 1-6). Based on the location of the 1100 West Street intersection, slower traffic accessing from 1100 West Street currently conflicts with the accelerating traffic merging onto US-89/91. A review of UDOT's accident data identified a number of high-severity crashes in this vicinity. There were 22 vehicular accidents reported between 2003 and 2007, which is higher than the average of 5 accidents at other US-89/91 intersections in the immediate area. The severity of crashes at this location averaged



**Figure 1-6. Acceleration lane and 1100 South Street Intersection at US-89/91.**



1.91 on the severity scale, which is higher than the 1.75 average at four other intersections in the area. An additional safety concern is that the existing acceleration lane is also deficient in length by approximately 850 feet from the State standard of 1,440 feet to allow for safe acceleration and merging.

***Turning conflict improvement criteria:***

- 1. Meet UDOT Design Standards for roadway geometry and turning lanes.*
- 2. Meet the access standards for Access Management Category 4 in the as defined in Administrative Rule R930-6, Accommodation of Utilities and the Control and Protection of State Highway Rights of Way (2006).*

As part of the public involvement interaction of the Project, it was evident that the public saw a need to accommodate continuous pedestrian movements throughout the SR-252 corridor. Currently, the corridor has areas of discontinuous sidewalk that result in safety concerns as pedestrians are required to move from defined sidewalk areas into the roadway area as they walk. Figure 1-7 shows the locations of sidewalk deficiencies.

Of particular concern to the public was the Woodruff Elementary School area (600 South to 200 South) where during the school year, elementary age children walk to school. Sidewalks within this residential neighborhood are discontinuous (Figure 1-7). Extensive public input (see Public Involvement Summary, Appendix B) provided strong support for creating additional buffer distance between the travel way and the planned sidewalks by placing the sidewalks outside of the clear zone limits within this area of the corridor. Clear zone is defined as the distance from the edge of the travel way to a point where a fixed obstruction will not reasonably affect the driver's ability to recover once the vehicle has left the travel lane. The clear zone in this residential area is 22 feet.

Available accident data does not indicate an obvious existing need for this length of separation, but the need is predicated on context sensitivity coupled with the understanding that children, especially elementary-age children, may be less attentive to traffic conditions. As such, sidewalks within the established clear zone of high-density pedestrian areas are to be addressed by the Project.

***Pedestrian Safety Criteria:***

- 1. Fully Developed Woodruff Elementary Residential Area: Continuous sidewalks that are outside the 22 foot clear zone limit.*
- 2. Areas outside the Fully Developed Residential Area: Continuous sidewalks meeting UDOT standards for design and location.*

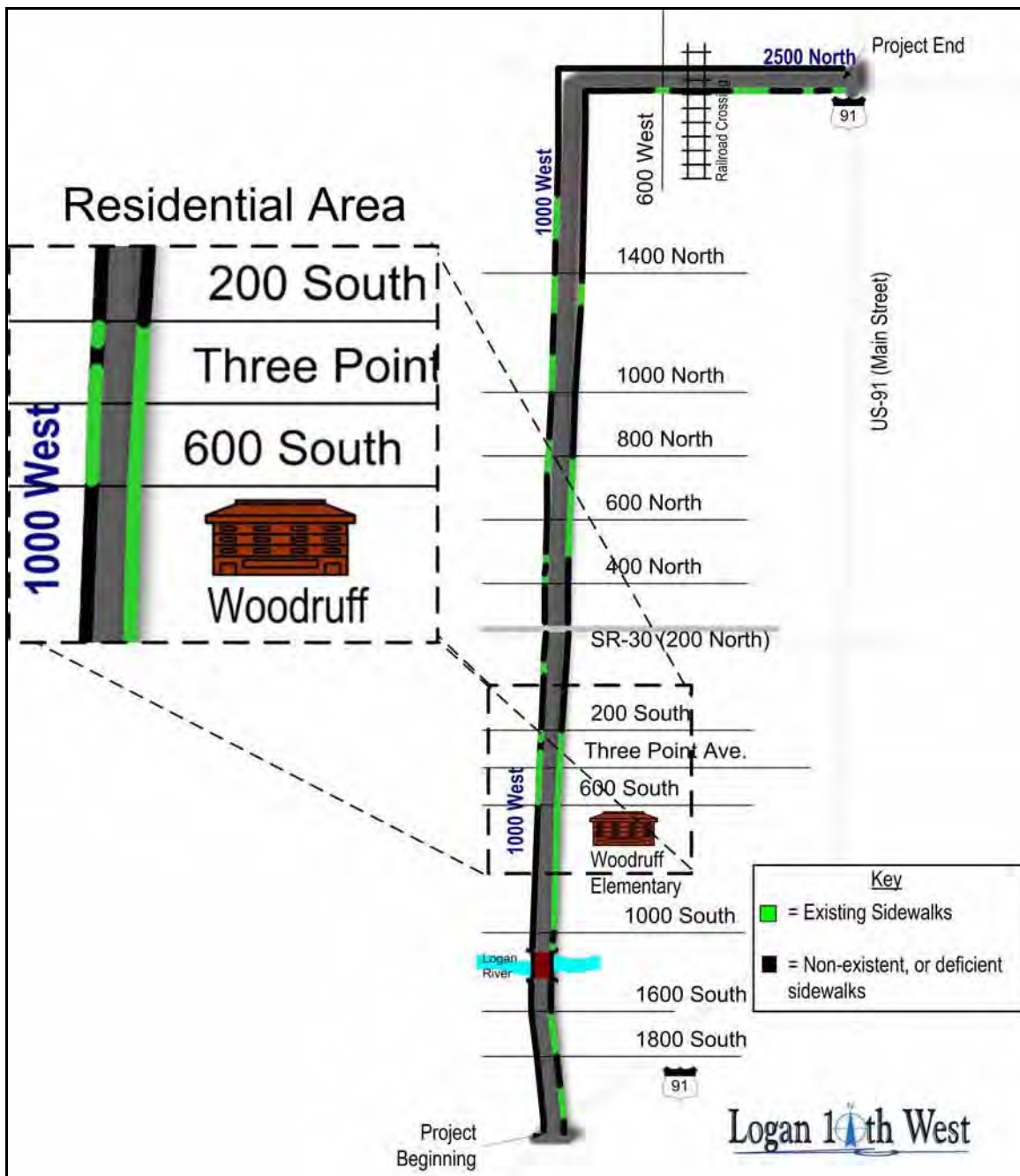


Figure 1-7. Sidewalk and curb and gutter deficiencies.

### 1.2.2.3 Utility Facilities Within the Clear Zone

Currently, there are numerous aboveground utility features that are placed very close to the roadway. Large, fixed obstructions (e.g., power poles, fire hydrants, irrigation gates) represent safety concerns because vehicle collisions with them can cause extensive damage. When these features are placed inside the clear zone, the driver has reduced space for recovery before potentially colliding with these obstructions. An example of this condition can be seen in Figure 1-8, a photograph of such facilities near 800 South Street and 1000 West Street.

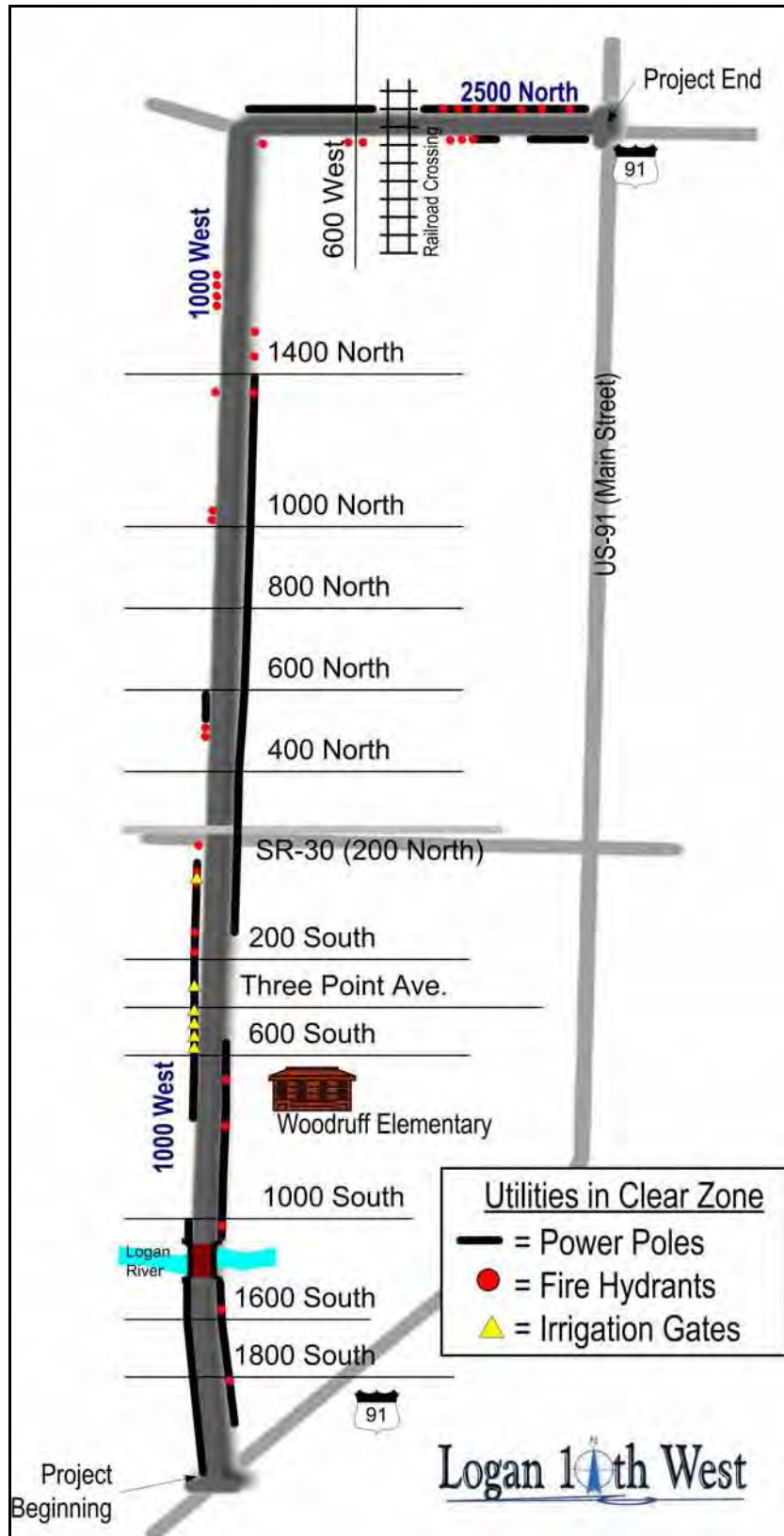


**Figure 1-8.** Photograph showing fire hydrant, utility power pole, and utility box near the curb on SR-252.

The UDOT provides a standard approach to developing roadway cross sections, recommending these utilities be placed outside the clear zone wherever practical given engineering and environmental constraints. The clear zone for the Project ranges from 22 feet in the portion of the corridor from 1000 South Street to 200 South Street to 26 feet in all other areas. The clear zone is dependent on design speeds: the higher the design speed, the greater the clear zone width. Locations where utilities currently occur within the clear zones are presented as Figure 1-9.

#### **Utility Location Improvement Criteria:**

*Power pole, fire hydrant and above ground irrigation gate facilities placed outside the clear zone limits wherever practical given engineering and environmental constraints.*



**Figure 1-9. Existing utilities within clear zone limits.**



### 1.2.3 Roadway Infrastructure

Existing pavement conditions and drainage collection facilities are insufficient to provide for current and future conditions. There are deteriorating pavement and unpaved shoulders, particularly in sections south of 200 South Street and between 600 West Street and US-91 on 2500 North Street. The pavement in these areas ranges from 24 to 30 years old, which is longer than the standard 20 year asphalt life expected by UDOT. Based on the age of the asphalt, the existing pavement was studied by UDOT and found to exhibit cracking and general deterioration that does not meet the UDOT standard 20-year pavement life requirements.

Drainage deficiencies include inadequate collection and conveyance facilities that result in localized ponding conditions and runoff onto properties adjacent to the roadway. The existing roadway is very flat with slopes of less than the UDOT standard of 0.3 percent. These flatter-than-standard slopes result in difficulty in moving water collected within the curb and gutter to drainage collection facilities in an efficient and safe way. Ultimately, these flat slopes have led to areas of water that spreads into the travel way, creating safety concerns (particularly during winter months when icy conditions occur).

There are curb and gutter deficiencies at various locations along the corridor (Figure 1-7). Existing curb and gutter has previously been installed as part of discontinuous development. The resulting condition is that curb and gutter collects drainage only sporadically along the corridor, and does not effectively convey roadway runoff and the concentrated gutter flows to appropriate discharge locations.

The existing corridor has only limited shoulder capacity and not all shoulders are fully paved. These deficient areas generally occur in the same areas where curb and gutter and sidewalk do not exist (see Figure 1-7). Full-width paved shoulders are important for bicycle use and safe recovery of inattentive drivers. Additionally, the inconsistency of the cross section for driver expectation can result in less than optimal travel conditions. The UDOT's standard for a roadway of this type is a minimum 10-foot-wide paved shoulder that will allow for various functions such as vehicle pull-off, recovery area, and placement of drainage collection boxes out of the travel way.

#### **Roadway Infrastructure Improvement Criteria:**

1. *Pavement structures that meet UDOT Standard pavement life (20 years for asphalt, 40 years for concrete).*
2. *Roadway slopes that meet the minimum standard of 0.3 percent.*
3. *Drainage facilities sufficient to eliminate ponding within the travel lanes.*
4. *Continuous curb and gutter that meet UDOT standards for design and location.*
5. *Ten-foot-wide, fully paved shoulders, wherever practical given engineering and environmental constraints.*



## 1.3 Summary

The purpose of the Project is to bring the SR-252 corridor into conformance with State design and operational standards while remaining sensitive to the natural and built environment of the corridor.

The corridor does not currently meet the State design and operational standards in the areas of traffic capacity, safety, and roadway infrastructure and the Project purpose is to correct these deficiencies to the extent practical within the context of the social, natural and build environment.

Roadway capacity for some segments of the corridor is currently at failing LOS. By the design year LOS will fail along most of the corridor. Major intersections currently operate at adequate to good LOS, but by the design year 5 of the 11 major intersections will operate at failing LOS during peak hours.

The corridor currently exhibits deficiencies safety including vehicular turning conflicts, sidewalk deficiencies (especially in the vicinity of Woodruff Elementary School), and numerous utilities located within the clear zones.

Existing pavement conditions and drainage collection facilities are insufficient to provide for existing and future conditions and need to be upgraded. Large sections of the corridor on the south end have deteriorating pavement and/or unpaved shoulders. Drainage deficiencies include inadequate collection and conveyance facilities that result in localized ponding conditions as well as runoff onto properties adjacent to the roadway. Curb and gutter facilities are not continuous along the corridor.

Criteria for addressing these corridor deficiencies and thus meeting Project needs are presented as Table 1-3.

**Table 1-3. Summary of needs and improvement criteria.**

NEED	LOCATION	IMPROVEMENT CRITERIA
Roadway capacity	Entire corridor	All segments of the corridor at LOS D or better for the design year 2030, to the extent practical given engineering and environmental constraints.
Intersection capacity	Major intersections planned for future signals	Signalized intersections at LOS D or better for the design year 2030, to the extent practical given engineering and environmental constraints.
Vehicular safety (turning conflicts)	Entire corridor	<ol style="list-style-type: none"><li>1. Meet UDOT standards for roadway geometry and turning lanes.</li><li>2. Meet the access standards for Access Management Category 4 in the as defined in Administrative Rule R930-6, <i>Accommodation of Utilities and the Control and Protection of State Highway Rights of Way</i> (2006).</li></ol>
Pedestrian safety	Entire corridor	Continuous sidewalks that meet UDOT design standards.
Pedestrian safety	Fully developed residential area	Continuous sidewalks that are outside the 22-foot clear zone.
Vehicular safety (utility locations)	Entire corridor	Power pole, fire hydrant and above ground irrigation gate facilities placed outside the clear zone limits wherever practical given engineering and environmental constraints.
Roadway infrastructure	Entire corridor	<ol style="list-style-type: none"><li>1. Pavement that meets UDOT's standards for life (20 years for asphalt, 40 years for concrete).</li><li>2. Roadway slopes that meet the standard minimum of 0.3 percent.</li><li>3. Drainage facilities sufficient to eliminate ponding within the travel lanes.</li><li>4. Continuous curb and gutter that meet UDOT standards.</li><li>5. 10-foot paved shoulders, wherever practical given engineering and environmental constraints.</li></ol>

## **CHAPTER 2**

### **ALTERNATIVES**



## **2.0 ALTERNATIVES**

This chapter describes the alternatives considered for the State Route 252 (SR-252)/1000 West Street Corridor Improvement Project (Project). Alternatives were developed to meet the purpose of the Project, which is to bring the corridor into conformance with State design and operational standards while remaining sensitive to the social, natural, and built environment. This chapter evaluates the alternatives, discusses screening to meet Project needs and improvement criteria as defined in Chapter 1 while also considering the context of the corridor. In accordance with Utah Department of Transportation (UDOT) Policy 08A2-4, both build and no-build alternatives are considered.

### **2.1 Alternative Development Process**

Multiple alternatives were evaluated through an iterative process to ensure that proposed improvements to SR-252 were based upon the corridor deficiencies (needs) and the context of the corridor. This context includes existing and future land uses, environmental constraints, and public concerns.

#### **2.1.1 Background and Screening Criteria**

Upon execution of the Corridor Agreement in June of 2008, UDOT anticipated meeting design and operational standards by upgrading the corridor facilities within the existing right-of-way (ROW). The existing ROW width is approximately 99 feet for most of the 7-mile length; although it narrows to approximately 80 feet in the fully developed residential area between 600 South Street and 200 South Street and 60 feet between 200 South Street and 200 North Street. The UDOT evaluated the possibility that corridor improvements could remain within the existing ROW to eliminate conflicts with existing land uses and to minimize possible environmental constraints. To remain within the existing ROW, only minimum facility upgrades would be possible and travel lane configurations would likely not be consistent throughout the corridor. In one initial concept, UDOT proposed upgrading facilities to a minimum of three lanes, including a median lane dedicated to left turns and paved shoulders. From this concept alternatives were developed to address the defined corridor deficiencies.

The corridor deficiencies presented in Chapter 1 are grouped under three fundamental categories: capacity constraints, safety elements, and roadway infrastructure. A thorough analysis of these deficiencies permitted UDOT to develop specific criteria to evaluate an alternative's ability to meet the Project needs. These criteria are defined in Table 1-3 in Chapter 1.

Alternatives that did not meet these criteria were eliminated from detailed consideration. Alternatives that met the criteria were advanced for further consideration. Additionally, the No-Build Alternative was advanced for detailed consideration as required under UDOT Policy 08A2-4.

## 2.1.2 Public Involvement and Context Sensitivity

The public involvement activities for the Project were designed and implemented to engage all stakeholders and the general public in the design process. The primary goal was to develop a clear understanding of the corridor deficiencies, adjacent land use constraints, and specific public concerns that could possibly be included in alternative designs. Through an iterative process, there were multiple opportunities for the public, stakeholders, and public officials to provide input on the development of Project design alternatives. All appropriate resource and regulatory agencies were contacted and solicited for specific environmental concerns along the corridor. Table 2-1 summarizes the major public involvement activities and objectives. Appendix C provides copies of all pertinent agency correspondence and Appendix B provides a detailed public involvement report.

**Table 2-1. Public involvement summary.**

ACTIVITIES	WHEN OCCURRED	OBJECTIVES
Public scoping meeting	May 2008	<ul style="list-style-type: none"> <li>Discuss preliminary Project goals</li> <li>Identify potential environmental issues</li> </ul>
Technical Advisory Committee (TAC) meetings	April 2008 – August 2009	<ul style="list-style-type: none"> <li>Project status updates for 28 local organizations and agencies</li> <li>Obtain input on design features from these key informants and stakeholders</li> </ul>
Individual property/business owner visits	April 2008- September 2009	<ul style="list-style-type: none"> <li>Project status updates</li> <li>Determine issues to be considered and resolved</li> <li>More than 125 individual site visits</li> </ul>
Local government /agency meetings	May 2008 – April 2009	<ul style="list-style-type: none"> <li>Project status updates</li> <li>Gather input from elected officials</li> </ul>
Neighborhood council meetings	April 2008 – October 2008	<ul style="list-style-type: none"> <li>Provide Project status update and determine issues</li> <li>Invite neighborhood representatives to participate in the TAC</li> </ul>
Woodruff Elementary Parent Teacher Association meeting	May 2008 October 2008 July 2009	<ul style="list-style-type: none"> <li>Project status updates</li> <li>Gather input specific to the various school interests</li> </ul>
Property/business owner meeting	October 2008	<ul style="list-style-type: none"> <li>Group sessions with business owners</li> <li>Discuss design issues specific to local businesses</li> </ul>
Public open house meeting	October 2008	<ul style="list-style-type: none"> <li>Present and gather input on proposed designs and modifications following previous public input</li> </ul>
Special residential area meetings	March 2009 – May 2009	<ul style="list-style-type: none"> <li>Less formal meetings with local ad-hoc committees and homeowner groups</li> <li>Clarify information, discuss issues, understand challenges, and find solutions</li> </ul>
Public open house meeting and 1100 West Street neighborhood meeting	July 2009 and August 2009	<ul style="list-style-type: none"> <li>Present and gather input on preferred alternative sections and related improvements</li> <li>Present elements of proposed closure of 1100 West Street and related acceleration lane improvements</li> </ul>

The issues and constraints shown below identified by the public and agencies provided additional information to define secondary goals by which alternatives were evaluated:

- Existing development along the corridor, including:
  - Commercial development, particularly between 200 North Street and 1000 North Street, and on 2500 North Street between 600 West Street and U.S. Highway 91, where commercial development occurs on both sides of the corridor.
  - Residential development, particularly between 600 South Street and 200 South Street (Woodruff Elementary School neighborhood), where residential development occurs on both sides of the corridor.
  - Woodruff Elementary School located adjacent to the corridor at 600 South Street.
- Limited buffering of sidewalks from travel lanes where children walk to the elementary school.
- An existing Agricultural Protection Area (APA), which is located adjacent to the ROW from 1000 South to 600 South Street on the west side, along with residential development adjacent to the ROW on the east side.
- Four properties considered eligible for the National Register of Historic Places occur on the west side of the corridor in the Woodruff Elementary School neighborhood.
- Jurisdictional wetlands adjacent to the corridor, especially in the vicinity of the Logan River, 200 South to 200 North Street, and from 1400 North to 2500 North Street.

## **2.2 Alternatives Considered**

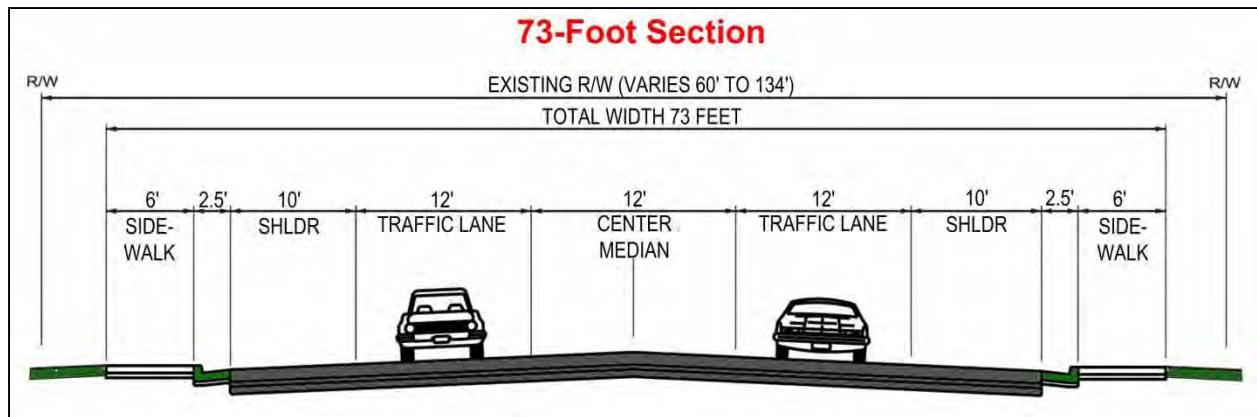
The No-Build Alternative and conceptual designs for the initial build alternatives were evaluated based on their ability to meet Project needs identified in Chapter 1 and summarized in Table 1-3.

### **2.2.1 The No-Build Alternative**

Under the No-Build Alternative, no improvements to the SR-252 corridor would be made other than routine maintenance within the existing ROW. This would include pavement repair, stormwater drainage maintenance, and roadway signage and signalization maintenance.

### **2.2.2 The Three-Lane Alternative**

A three-lane cross section was first proposed because this roadway width could generally be accommodated within the existing ROW limits that is 99-feet over most of the corridor, but is as narrow as 60-feet in portions of the corridor between 200 South Street and 200 North Street. The typical cross-section evaluated for the Three-Lane Alternative was 73-feet wide, as illustrated in Figure 2-1.



**Figure 2-1. Cross section evaluated for the Three-Lane Alternative.**

This cross section would provide one, 12-foot travel lane in each direction with a continuous 12-foot turning median and 10-foot paved shoulders. The cross section includes curb and gutter and a 6-foot sidewalk on each side of the corridor. In the design for traffic modeling, right turn lanes are added at intersection locations when the UDOT Policy (R930-6) is met (a minimum of 25 right turning movements in the peak hour). At locations meeting this policy, the ROW is increased by 6 feet to allow the standard 10-foot shoulder to transition to 16 feet (a 12-foot turn lane with a 4-foot shoulder).

The Three-Lane Alternative includes specific modifications to address the safety issue of the deficient acceleration lane at the intersection of SR-252 with US-89/91. The existing acceleration lane that connects southbound to US-89/91 from SR-252 is substandard in length by 750 feet (see Section 1.2.2.1 and Figure 1-6 in Chapter 1). The existing acceleration and taper lane is 590 feet. The UDOT standard is 1,440 feet. However, extension of the acceleration lane to the standard length would conflict with the intersection of 1100 West Street and US-89/91. As discussed in Chapter 1, this intersection is already a safety concern because of the higher-than-normal severity of accidents resulting from high-speed crashes. All build alternatives considered would propose closing the intersection at 1100 West Street and extending the acceleration lane to the standard length. This would include extending the existing 12-foot acceleration lane and 6-foot shoulder for approximately 250 feet further south from the 1100 West Street intersection from where it currently ends. The acceleration lane would then be tapered out for approximately 660 feet to allow for a merging traffic movement and to match the existing 6-foot shoulder width.

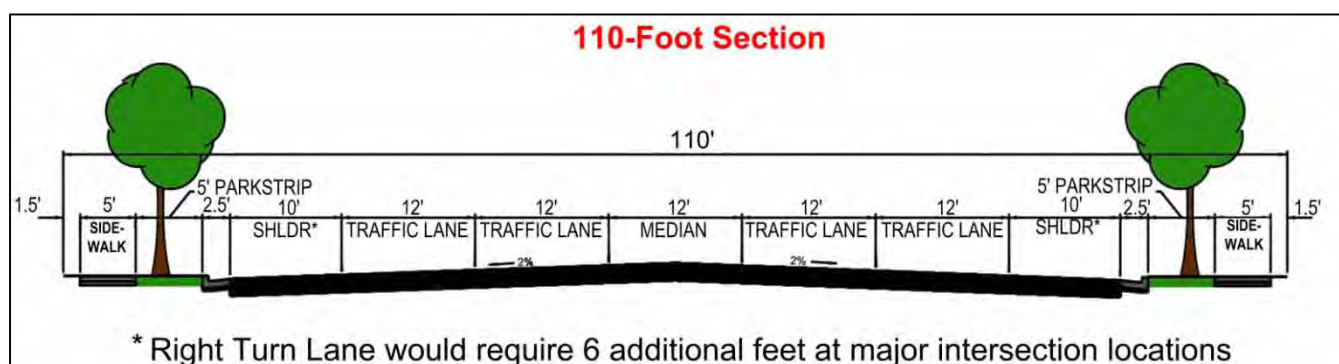
Additionally, minor geometric improvements would be made to the curve radius connecting SR-252 to US-89/91. A 10-foot perpetual easement would also be required on the residential property between 1100 West Street and US-89/91 to cover roadway side slopes and ditch relocation. A public meeting was advertised and held with all residents currently residing in the vicinity of the 1100 West Street intersection to discuss the proposed closure of the intersection at 1100 West Street. From the more than 130 homes in the area, two residents attended this meeting. Those two voiced their approval of the proposal. This design was also coordinated with Logan City. Logan City agreed with the closure of 1100 West Street, but requested that a “crash gate” be installed at the 11000 West Street closure in compliance with International Fire Code



Section 503.5.1 and 503.6 as adopted by Logan City (Municipal Code 8.04.010). The “crash-gate” would provide a secondary emergency-response access to the residential neighborhood.

### 2.2.3 The Five-Lane Alternative

The UDOT preferred cross section for a regional arterial is 110 feet wide. This typical cross section was also developed as an initial alternative to screen for ability to meet the Project needs, especially roadway and intersection capacity. The typical cross section for this alternative, illustrated in Figure 2-2, has two standard 12-foot travel lanes in each direction with a continuous 12-foot center turn median, and 10-foot shoulders. Curb, gutter, and 5-foot sidewalks are included on both sides with the sidewalk separated from the roadway with a 5-foot park strip planting area. As with the three-lane cross section, right turn lanes are added at intersections having more than 25 vehicles turning in any single hour (UDOT Policy R930-6), making the section 6-feet wider at these locations. At locations meeting this policy, the ROW is increased by 6 feet to allow the standard 10-foot shoulder to transition to 16-feet (a 12-foot turn lane with a 4-foot shoulder).



**Figure 2-2. Cross section evaluated for the Five-Lane Alternative.**

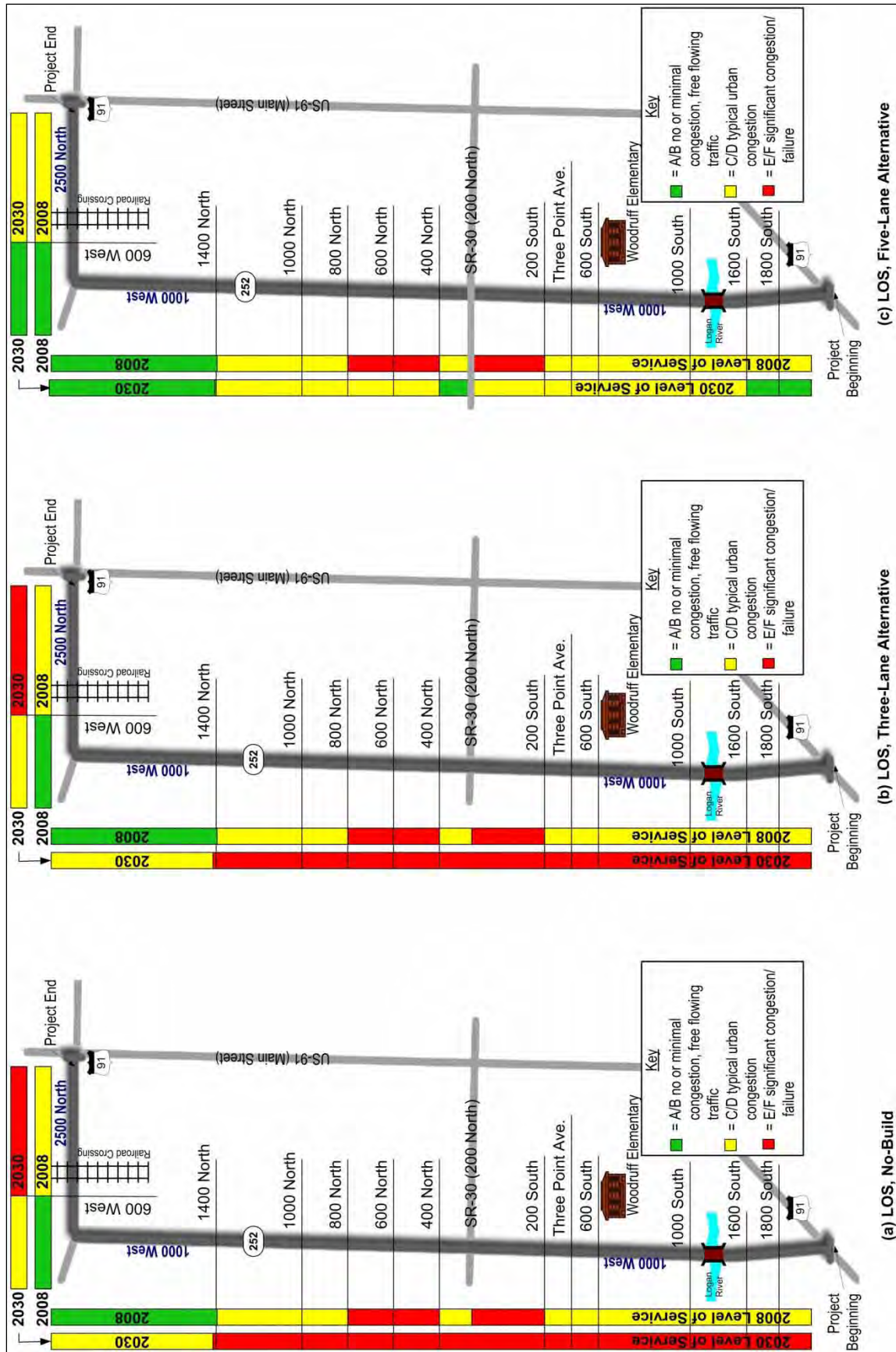
As described in Section 2.2.2, the acceleration lane at the intersection of SR-252 with US-89/91 would be extended to meet standard length and geometry, and access to 1100 West Street from US-89/91 would be closed with a gate providing emergency access only.

### 2.2.4 Screening of Alternatives for Ability to Meet Project Needs

The alternatives were evaluated for their ability to meet the Project needs identified in Chapter 1 and summarized in Table 1-3.

#### 2.2.4.1 Roadway and Intersection Capacity Needs

The Traffic Engineering Report (Traffic Study) for the Project determined that projected traffic volumes for the design year 2030 will more than double over existing conditions. As discussed in Chapter 1, projected traffic volumes on the SR-252 corridor will range from approximately 11,800 to 33,100 vehicles per day for the design year 2030. Figure 2-3 illustrates the modeled LOS for the alternatives based on the projected traffic volumes.



**Figure 2-3. Roadway capacity (LOS) evaluation for the alternatives.**

The No-Build Alternative would not address the traffic capacity needs that have been identified for the proposed Project. The Traffic Study examined both existing (2008) and design year (2030) LOS for the corridor under the No-Build Alternative. Two segments of the corridor (200 South to 200 North Street and 400 North to 800 North Street) already have failing LOS conditions. By 2030 all segments of the corridor except 1400 North to 2500 North Street and 1000 West Street to 600 West Street would have failing LOS conditions.

The Traffic Study found that maximum traffic volumes for the Three-Lane Alternative would be in the range of 13,000 to 16,000 vehicles per day before failure is reached. Thus, it is expected that the LOS for the corridor would likely fail prior to the design year 2030, except in the corridor segment on 1000 West Street from 1400 North to 2500 North Street and on 2500 North Street between 1000 West Street and 600 West Street. Therefore, the Three-Lane Alternative would not meet the need for roadway capacity.

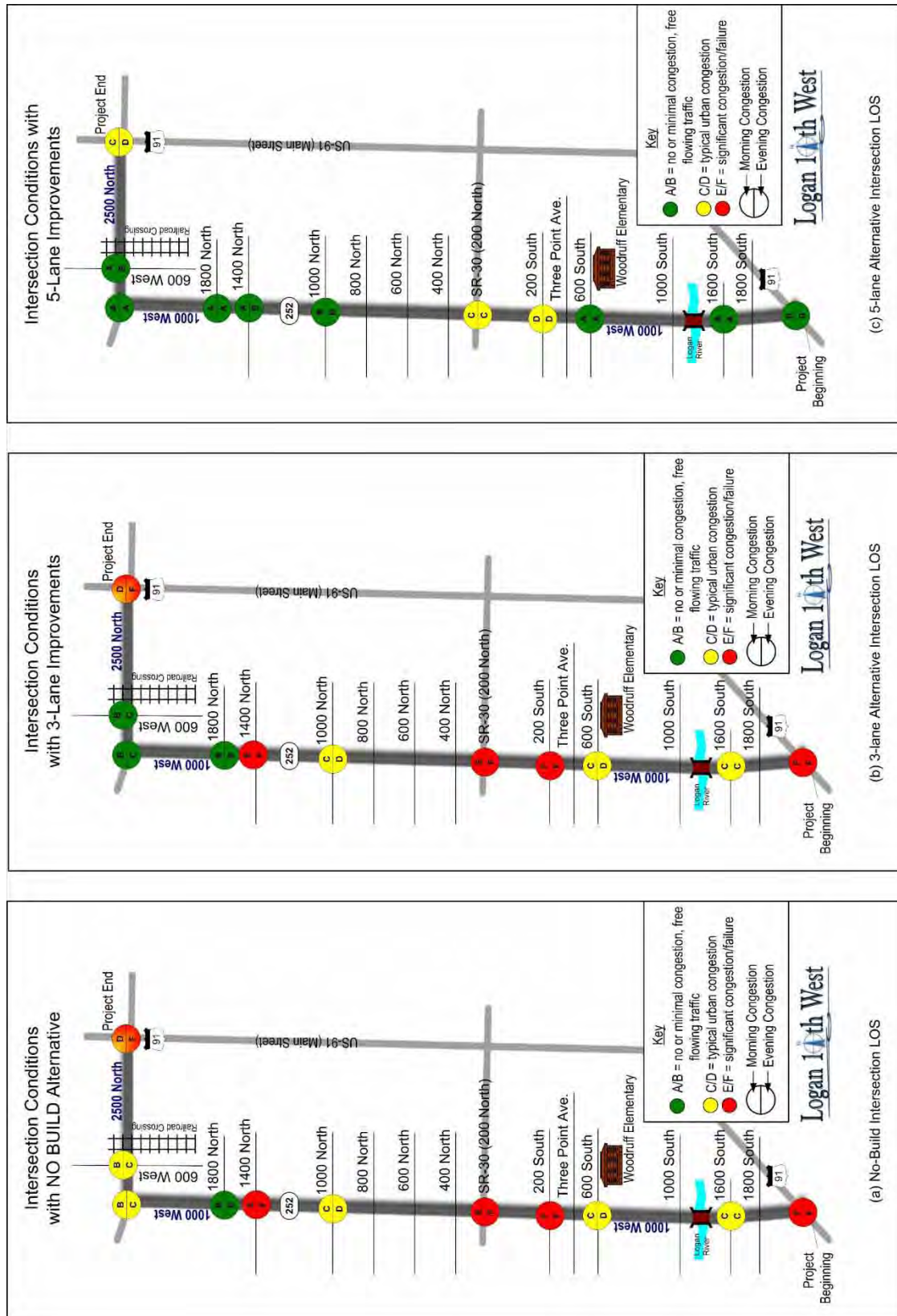
The Traffic Study found that maximum traffic volumes for the Five-Lane Alternative would be in the range of 37,000 to 40,000 vehicles per day before failure is reached. These traffic volumes exceed the projected volumes for the design year 2030. The Five-Lane Alternative would meet a minimum-accepted LOS target of D or better through the design year 2030 throughout the corridor (Figure 2-3). Therefore, the Five-Lane Alternative would meet the need for roadway capacity.

Intersection capacity and LOS were also analyzed for all of the three alternatives. Figure 2-4 illustrates intersection LOS for the initial alternatives. The No-Build Alternative would be equivalent to the Three-Lane Alternative illustrated in Figure 2-4, with 5 of 11 major intersections providing failing LOS by 2030. Therefore, neither the No-Build Alternative nor the Three-Lane Alternative would meet the traffic capacity needs for intersections. Only the Five-Lane Alternative would meet intersection capacity criteria at all evaluated intersections.

#### **2.2.4.2 Vehicle and Pedestrian Safety Needs**

The No-Build Alternative would not provide an opportunity to address vehicular and pedestrian safety deficiencies that have been identified as needs for the proposed Project. However, some minor improvements could be accomplished as situations arose under a No-Build scenario. For example, because of the Corridor Agreement, future development along the corridor would need to be consistent with the Category 4 access management policy. As opportunities arose, UDOT could also potentially work with existing property owners to improve access management in currently developed portions of the corridor. There could also be some opportunities to relocate above ground utility features outside of the clear zone when these features are upgraded or replaced, but only where the existing ROW would be sufficient to accomplish this. Since these improvements could only be made as situations arose, the No-Build Alternative would not meet the identified safety needs throughout the Project corridor. The No-Build Alternative would also not meet the identified need to provide a 22-foot pedestrian buffer in the Wilson Elementary School neighborhood.





**Figure 2-4. Year 2030 intersection capacity (LOS) evaluation for the alternatives.**

Though the complete corridor design was not yet developed at this screening stage, either of the build alternatives meets the needs for access modifications or closures, curb and gutter, and development of sidewalks on both sides of the corridor. With the Five-Lane Alternative, power poles, fire hydrants, and irrigation gate facilities could be placed outside the clear zone limits. This is not possible in some narrow portions of the corridor within the existing ROW (between 600 South to 200 North Street) with the Three-Lane Alternative. Neither the Three-Lane Alternative nor the Five-Lane Alternative could meet the identified Project need for a 22-foot pedestrian buffer in the Woodruff Elementary School neighborhood (600 South to 200 South Street).

#### **2.2.4.3 Roadway Infrastructure Needs**

Either of the two initial build alternatives could meet the Project needs for roadway infrastructure improvements, while the No-Build Alternative would not provide an opportunity to address these needs. Either build alternative could provide for pavement reconstruction to meet UDOT's standards for life cycle. Roadway slopes could also be improved to meet UDOT's 0.3 percent minimum standard. Drainage improvements could be incorporated into either alternative to meet UDOT's standards. Continuous curb and gutter and 10-foot paved shoulders could also be included with either of the initial build alternatives.

### **2.2.5 Alternatives Screening Summary**

Table 2-2 summarizes the screening of the alternatives for their ability to meet the Project needs. It was determined that the No-Build Alternative would not meet any of the identified Project needs, but was advanced for detailed consideration per UDOT Policy 08A2-4.

The Three-Lane Alternative could not meet the Project needs for roadway or intersection capacity for the design year 2030. The Three-Lane Alternative would also not meet the need to place aboveground utilities outside the clear zone in narrower sections of the corridor. Therefore, the Three-Lane Alternative was dismissed from further consideration.

The Five-Lane Alternative could meet both roadway and intersection capacity needs, providing a minimum LOS D or better throughout the corridor and at all major intersections. While the cross section for this alternative did not meet the need for continuous sidewalks outside the 22-foot buffer in the Woodruff Elementary School neighborhood, refinement of the alternative in the area could potentially accommodate this need. Therefore, the Five-Lane Alternative was advanced for further consideration and refinement.

## **2.3 Refinement of the Five-Lane Alternative**

After determining that the corridor would require five lanes to address capacity needs, further evaluation was conducted to assess how the 110-foot cross section for the Five-Lane Alternative would address the context constraints identified in Section 2.1.2. Where conflicts with context or inability to meet Project needs were identified, the preferred 110-foot typical section was refined and these refinements were presented as alternatives.

**Table 2-2. Alternatives screening summary.**

PROJECT NEEDS CRITERIA	ALTERNATIVES		
	NO BUILD	THREE LANE	FIVE LANE
<u>Traffic capacity:</u>			
1. All segments of the corridor at Level of Service (LOS) D or better for the design year 2030 to the extent practical given engineering and environmental constraints.	No	No	Yes
2. Signalized intersections at LOS D or better for the design year 2030 to the extent practical given engineering and environmental constraints.	No	No	Yes
<u>Vehicular safety:</u>			
1. Meet UDOT standards for roadway geometry and turning lanes.	No	Yes	Yes
2. Meet the access standards for Access Management Category 4 in the as defined in Administrative Rule R930-6, Accommodation of Utilities and the Control and Protection of State Highway Rights of Way (2006).	No	Yes	Yes
3. Power pole, fire hydrant and aboveground irrigation gate facilities placed outside the clear zone limits wherever practical given engineering and environmental constraints.	No	No	Yes
<u>Pedestrian safety:</u>			
1. Continuous sidewalks that meet Utah Department of Transportation (UDOT) design standards (corridor-wide).	No	Yes	Yes
2. Continuous sidewalks that are outside the 22-foot buffer (Woodruff Elementary School neighborhood).	No	No	No
<u>Roadway infrastructure improvements:</u>			
1. Pavement that meets UDOT's standards for life (20 years asphalt, 40 years concrete)	No	Yes	Yes
2. Roadway slopes that meet the standard minimum of 0.3 percent	No	Yes	Yes
3. Drainage facilities sufficient to eliminate ponding within the travel lanes	No	Yes	Yes
4. Continuous curb and gutter that meet UDOT standards	No	Yes	Yes
5. Ten-foot paved shoulders wherever practical given engineering and environmental constraints.	No	Yes	Yes

As previously described under Section 2.1.2, the context of the corridor was extensively considered as part of the public and agency involvement process. This process resulted in the identification of specific constraints as listed in Section 2.1.2. These constraints have been used to develop a set of goals to be met by an alternative in order to be considered for detailed evaluation. These goals were used to evaluate potential refinements of the Five-Lane Alternative.

#### **Alternative Refinement Criteria**

1. Limit right-of-way acquisition of existing commercial development, including structures and parking.
2. Limit right-of-way acquisition of existing residential properties.
3. Accommodate pedestrian activity with additional buffering in the section of the corridor near the Woodruff Elementary School where school children walk.
4. Avoid any acquisition of a designated Agricultural Protection Area (APA) located on the west side of 1000 West Street from approximately 1000 South to 600 South Street.
5. Limit historic property acquisition.
6. Limit impacts to jurisdictional wetlands.

Although the Five-Lane Alternative with the 110-foot cross section met all but one of the Project needs, the width of the ROW required for such an alternative may conflict with context constraints. An evaluation was conducted for this alternative (110-foot cross section) and for an alternative that would not require as much ROW (99-foot cross section). A 99-foot cross section was evaluated based on the commercial and urbanized setting of much of the corridor. In many urbanized settings UDOT has reduced the cross section by eliminating park strips and locating the sidewalk against the curb and gutter to limit impacts to adjacent properties. Eliminating the park strips reduces the cross section from 110 feet to 99 feet.

Further reductions in cross section were considered but dismissed. Five lanes could be fit into further reduced cross sections. However, any cross section less than 99 feet compromises other roadway features, particularly paved shoulder width necessary for vehicle recovery, storage for disabled vehicles, and opportunities for consistent right-turning lanes at intersections. Narrower cross sections would also constrain maintenance activities, especially the ability for snow removal/storage.

### **2.3.1 The 110-Foot Cross Section**

The UDOT preferred five-lane typical section is 110 feet wide as described in Section 2.2.2 and as previously illustrated in Figure 2-2. This was the cross section evaluated in alternatives screening. It was determined that this alternative would meet all Project needs criteria from Chapter 1 except that it would not meet the need for a 22-foot pedestrian buffer in the Woodruff Elementary School neighborhood.

### **2.3.2 The 99-Foot Cross Section**

An alternative five-lane cross section of 99 feet could match the width of the existing ROW for much of the SR-252 corridor. This reduced section would limit the amount of ROW needed and was identified as meeting the refinement goals described above. The 99-foot typical cross section maintains the standard lane, shoulder, curb and gutter, and sidewalk elements as described in the 110-foot cross section, but eliminates the park strip area as shown in Figure 2-5 comparing the 110-foot and 99-foot typical cross sections. Much of the existing corridor is classified under a land use designation of commercial, industrial, or mixed use promoting an urbanized setting. Elimination of a park strip would be consistent with the current and future land uses within the corridor, except in fully developed residential areas.

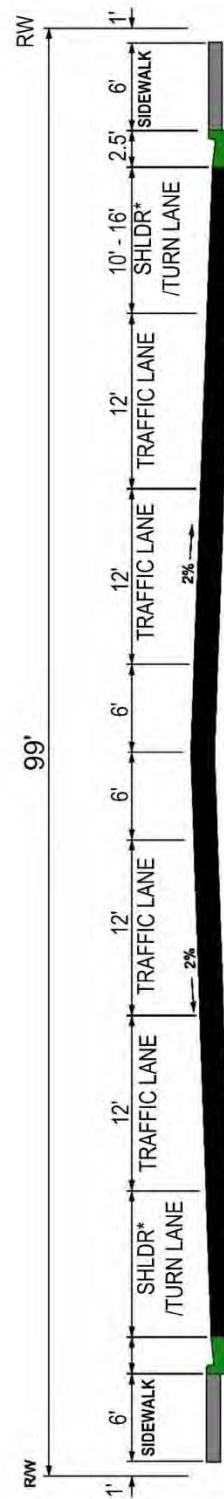
Because the objective of developing the 99-foot cross section was to refine the Five-Lane Alternative and address context constraints, a variation from the typical 99-foot cross section was designed and adopted, as part of the 99-foot alternative, to minimize conflicts with existing commercial development immediately south of the SR-30 (200 North Street) intersection where commercial structures are close to the existing ROW. This design variation is a reduction in cross section width for approximately 700 feet immediately south of the SR-252 intersection with SR-30 (200 North Street). This reduction would be accomplished by tapering the 10-foot paved shoulder to 4 feet, resulting in a section varying from 96 feet to 87 feet in width. This would eliminate impacts to seven commercial buildings in this vicinity (see Sheet 9, Access Modification Maps, Appendix A). The reduction in shoulder width in this limited section is not expected to compromise safety as it is proximate to the major 200 North Street signalized intersection.

The 99-foot alternative would include widening the existing Logan River Bridge, which is currently only 46 feet wide. The new bridge cross section would match the 99-foot cross section with the exception that a concrete barrier would replace the curb and gutter. All travel lanes, median turn lane, and paved shoulders are necessary for the bridge section to meet pedestrian safety and commercial and agricultural accesses proximate to the north and south of the Logan River. Widening of the existing bridge structure would occur on both sides of the existing bridge and would result in the need for construction of new embankment slopes. Standard UDOT embankment slopes would be 4:1 (horizontal:vertical), but to reduce impact to adjacent wetlands and property, a 2:1 embankment with guardrail on the edge of the road would be installed. Because of the size of the embankment slopes, needed area for future slope maintenance, and the need to relocate utilities beyond the slopes, the ROW would extend to approximately 15 feet beyond the bottom of the slope (see Sheet 3 in Appendix A).



Diagram of a 110' wide road cross-section. The road is divided into several lanes: two 12' traffic lanes, a 12' median, two 12' traffic lanes, and two 10' shoulders. On each side, there is a 5' parkstrip, a 2.5' shoulder, and a 5' side-walk. Trees are shown on the outer edges of the parkstrips. The total width is 110'.

## 99-Foot Section



**Figure 2-5. Comparison of typical cross sections for the 110-foot and 99-foot alternatives.**

As with all build alternatives evaluated, the 99-foot alternative would include extension of the acceleration lane at the intersection of SR-252 with US-89/91 and closure of access to 1100 West Street as described in Section 2.2.2.1.

## **2.3.3 Comparison of Five-Lane Alternative Refinements**

### **2.3.3.1 Project Needs Comparison**

As illustrated in Table 2-3, the comparison of the 110-foot cross section with the 99-foot cross section demonstrated that the Project needs could be met equally well by the narrower cross section. The elimination of the park strips in the 99-foot alternative would have no effect on the alternative's ability to meet roadway capacity as the number of travel lanes and width of travel lanes would remain the same. Intersection configurations would remain the same as the 110-foot alternative and thus have no effect on turning movements and lane storage. The variation that reduces the width at the northbound approach to SR-30 (200 North Street) would not change the lane geometry for the intersection, thus enabling left- and right-turning movements that would not affect the predicted intersection LOS.

Elimination of park strips would not affect the ability of the 99-foot alternative to address roadway infrastructure deficiencies. Pavement would be reconstructed. Road reconstruction would include opportunities to ensure drainage is sufficient to eliminate ponding. The 99-foot alternative includes continuous curb and gutter. Ten-foot paved shoulders would be constructed at all locations except immediately south of the SR-30 intersection. At that location, maintenance of full, 10-foot paved shoulders was determined impractical for a distance of 700 feet because seven commercial structures would be taken. This is consistent with the need to implement such shoulders where practical.

The 99-foot alternative that eliminates park strips would have no effect on the alternative's ability to address safety needs by constructing intersection turning lanes, nor the acceleration lane at the southern terminus of the corridor. Immovable utilities, such as power poles, could be placed outside the clear zone limits. Continuous sidewalks would be part of the cross section design. However, as with the 110-foot cross section, the 99-foot cross section would not address the pedestrian safety issue in the Woodruff Elementary School neighborhood. Neither alternative would provide pedestrian sidewalks outside the 22-foot buffer in this specific portion of the Project area.

### **2.3.3.2 Refinement Criteria Comparison**

After determining that both five-lane alternative cross sections (110-foot and 99-foot) addressed the Project needs equally well, an evaluation was conducted on the alternatives' abilities to address the refinement criteria identified at the beginning of Section 2.3. The summary of this evaluation is presented in Table 2-4.

**Table 2-3. Project needs verification for five-lane alternative cross sections.**

PROJECT NEEDS CRITERIA	FIVE-LANE ALTERNATIVES	
	110-FOOT CROSS SECTION	99-FOOT CROSS SECTION
<u>Traffic Capacity Needs:</u> 1. All segments of the corridor at LOS D or better for the design year 2030 to the extent practical given engineering and environmental constraints.  2. Signalized intersections at LOS D or better for the design year 2030 to the extent practical given engineering and environmental constraints.	Yes	Yes
<u>Vehicular Safety:</u> 1. Meet UDOT standards for roadway geometry and turning lanes.  2. Meet the access standards for Access Management Category 4 in the as defined in Administrative Rule R930-6.  3. Power pole, fire hydrant and aboveground irrigation gate facilities placed outside the clear zone limits wherever practical given engineering and environmental constraints.	Yes	Yes
<u>Pedestrian Safety:</u> 1. Continuous sidewalks that meet UDOT design standards (corridor-wide).  2. Continuous sidewalks that are outside the 22-foot buffer (Woodruff Elementary School neighborhood).	Yes	Yes
<u>Roadway Infrastructure Improvements:</u> 1. Pavement that meets UDOT's standards for life (20 years asphalt, 40 years concrete).  2. Roadway slopes that meet the standard minimum of 0.3 percent.  3. Drainage facilities sufficient to eliminate ponding within the travel lanes.  4. Continuous curb and gutter that meet UDOT standards.  5. Ten-foot paved shoulders, wherever practical given engineering and environmental constraints.	Yes	Yes

**Table 2-4. Refinement criteria comparison for five-lane alternatives.**

REFINEMENT CRITERIA	FIVE-LANE ALTERNATIVES	
	110-FOOT CROSS SECTION	99-FOOT CROSS SECTION
1. Commercial ROW	9.20 acres	2.76 acres
2. Commercial buildings taken	7 buildings	1 building
3. Residential right-of-way, acres	5.48 acres	3.96 acres
4. Residences taken	16 homes	12 homes
5. Woodruff Elementary School neighborhood sidewalk buffer	18.5 feet	12.5 feet
6. Agricultural Protection Area (APA)		
a. Right-of-way, acres	0.46 acres	0.13 acres
b. Structures	1 building	0 buildings
7. Eligible historic properties taken	3 structures	3 structures
8. Jurisdictional wetland impact	6.84 acres	5.90 acres

The 99-foot cross section would reduce commercial property acquisition by over 6 acres and would reduce residential property take by 1.5 acres. The ability to minimize ROW acquisition, especially in the vicinity of SR-30, would substantially reduce commercial building takes from 7 structures to only 1 structure with implementation of the 99-foot cross section. Acquisition of residences, all within the Woodruff Elementary School neighborhood would also be reduced, from 16 homes to 12 homes. Permanent impact to wetlands would be reduced by 1.4 acres with the 99-foot cross section. Impacts to the APA would be reduced by 0.33 acres, and the one farm outbuilding within the APA taken by the 110-foot cross section would be preserved by the 99-foot alternative. Both five-lane alternatives would require the complete take of the same three eligible historic properties.

The only disadvantage of the 99-foot cross section over the 110-foot was that the pedestrian sidewalk buffer in the Woodruff Elementary School neighborhood (600 South to 200 South Street) would be reduced from 18.5 feet to 12.5 feet.

### **2.3.3.3 Five-Lane Alternatives Refinement Conclusion**

The 99-foot cross section would address Project needs equally well compared with the 110-foot cross section and the 99-foot alternative would better address context constraints, with the exception of the pedestrian buffer in the Woodruff Elementary School neighborhood. Therefore, the 99-foot cross section was advanced for further consideration as a build alternative, and the 110-foot cross section was dismissed from further consideration.

Because the 99-foot cross section would not meet the pedestrian safety need within the Woodruff Elementary School neighborhood between 600 South and 200 South Street, nor eliminate ROW acquisition within the APA immediately south of the Woodruff Elementary School neighborhood, further refinement of this potential build alternative was required for these specific areas.

### **2.3.4 Refinements for the Woodruff Elementary School Neighborhood**

Corridor constraints associated with fully developed residential use on both sides of the corridor and concerns for child pedestrian safety within the Woodruff Elementary School neighborhood were identified early in scoping (see Section 2.1.2). A variety of options were entertained from the beginning of the Project to address these constraints. As with other portions of the corridor, these options focused on staying within the existing corridor to the extent possible.

In addition to the 99-foot cross section, an even narrower option was considered for the Woodruff Elementary School neighborhood that included 5 lanes within an 85-foot cross section. This narrower option would eliminate the need to acquire any homes within the Woodruff Elementary School neighborhood. Such a narrower cross section would eliminate the acquisition of properties considered eligible for the National Register of Historic Places. However any cross section below 99 feet compromises other roadway features, particularly paved shoulder width and consistent right turning lanes at intersections. Narrower cross sections would constrain maintenance activities, especially the ability for snow removal/storage. Most importantly, such a narrow cross section would substantially reduce the child pedestrian buffering to only 6.5 feet from the travel lanes.

Although an 85-foot cross section would not meet Project needs throughout the corridor, it was presented to the public as a possible alternative that would minimize encroachment on residential properties and would not require the acquisition of any homes. Extensive input from affected property owners between 600 South and 200 South Street (Woodruff Elementary School neighborhood) indicated opposition to any reduced cross section that placed the sidewalks used by elementary school children close to the vehicle travel lanes. Public concern resulted in the Logan City Council expressing their commitment to a wider cross section that would provide greater pedestrian buffering than the 85- and 99-foot sections. A copy of the City Council letter is provided in Appendix C.

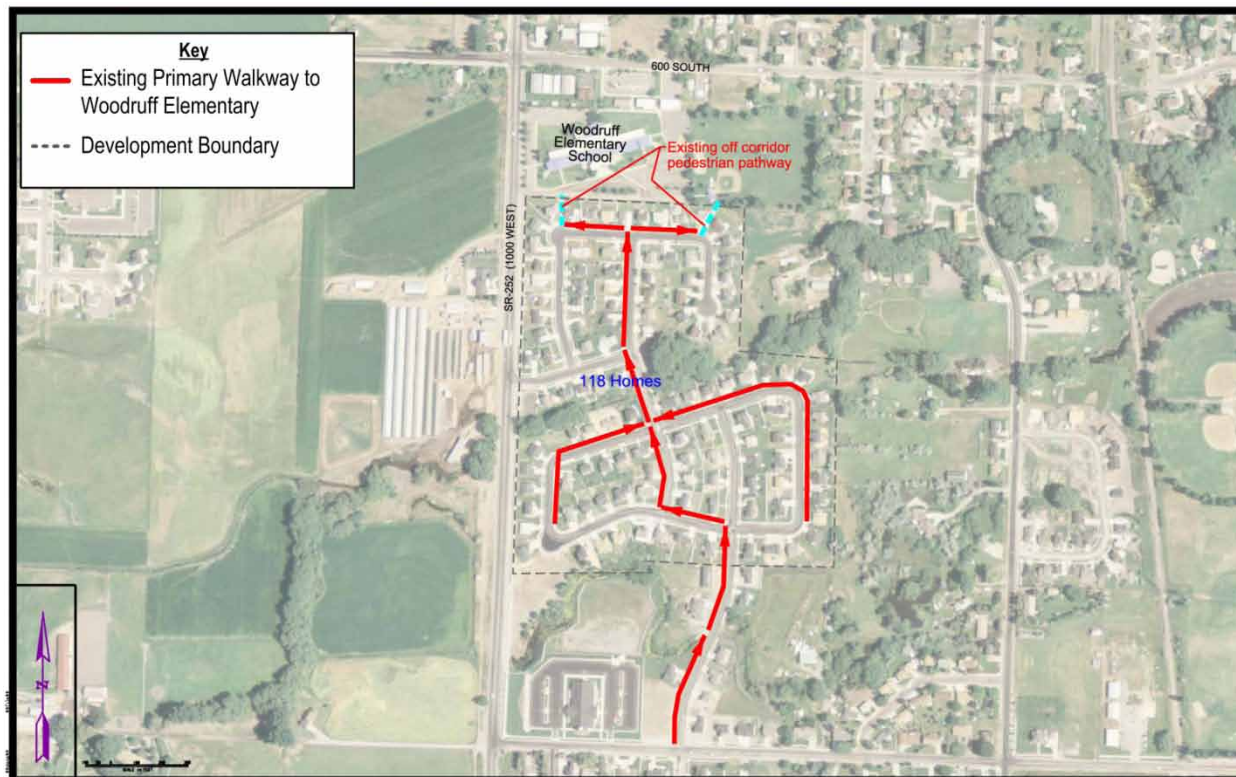
Because of the context-sensitive constraints in the Woodruff Elementary School neighborhood and the commitment of Logan City to address the pedestrian safety concerns of the neighborhood, cross-sections that would not support sidewalks outside the 22-foot buffer were dismissed from further consideration for the Woodruff Elementary School neighborhood. This included the 99-foot refinement alternative.

Attention then turned toward developing wider cross sections to address the need of implementing sidewalks outside of the established 22-foot buffer. Prior to looking at wider cross sections, however, efforts were made to develop off-corridor pedestrian access to Woodruff Elementary School.

#### **2.3.4.1 School Children Walkways to Woodruff Elementary**

Off-corridor access already exists for neighborhood areas to the south of the Woodruff Elementary School, as illustrated in Figure 2-6. Sidewalks within the interior of subdivisions further to the south of the school naturally funnel to these locations, which provide an access way that avoids major pedestrian activity along SR-252 south of Woodruff Elementary.

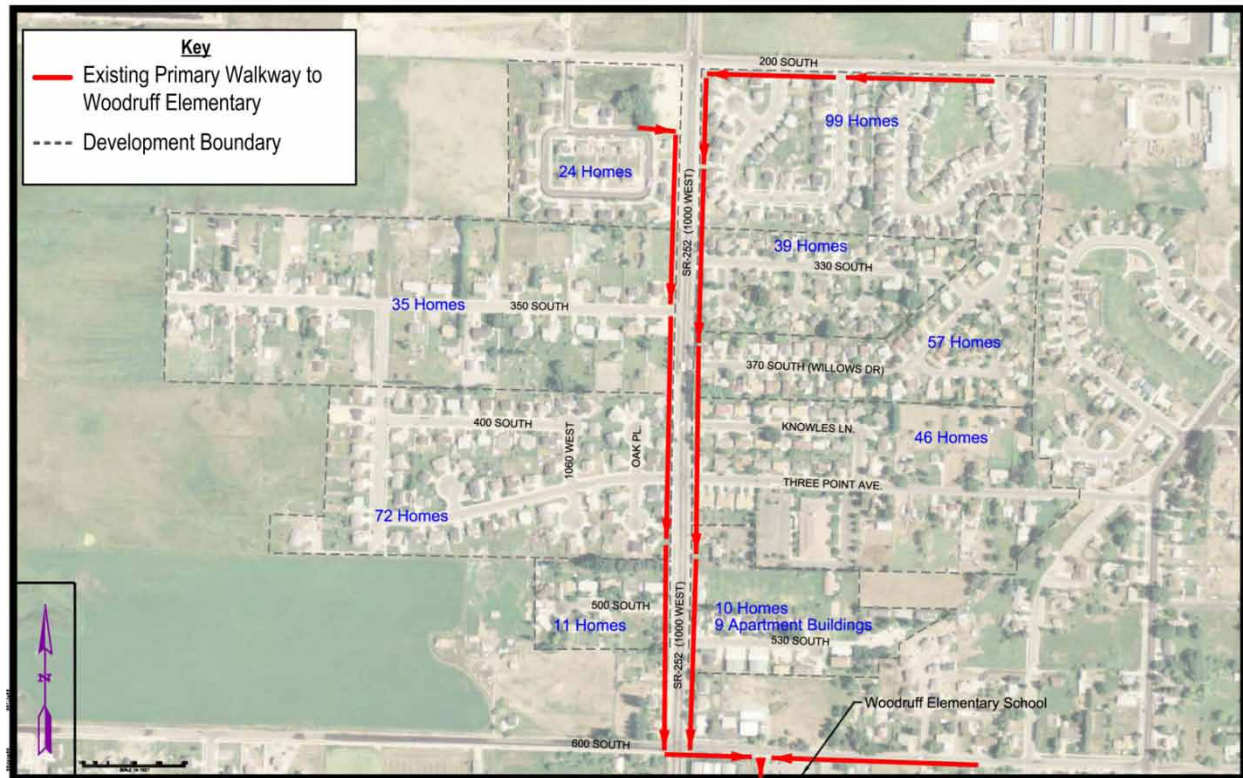




**Figure 2-6. School children walkways to Woodruff Elementary School from residential areas south of 600 South Street.**

Although the school's safe route to school plan does recognize the need for sidewalk accommodations along SR-252, because interior off-corridor pathways exist south of 600 South Street, a wider cross section that would accommodate a sidewalk outside the 22-foot buffer was not required.

An attempt was then made to design similar off-corridor access to the school for residential areas to the north of the school. Figure 2-7 shows that all current development to the north and northwest of Woodruff Elementary School are served by the sidewalks along SR-252 and the traffic signal at 600 South Street. This results in very active pedestrian activity before and after school in this narrow portion of the corridor. No internal pathways exist in this area. The residential homes were constructed with mixed parcel size and no common areas for such development. Parcels within these areas are not laid out in a consistent pattern conducive to developing a continuous internal pedestrian network. Any such network would require ROW acquisition from a large number of property owners. The concept was discussed at the neighborhood meetings and working groups. Because of the privacy concerns and loss of property, this concept had no support from the local community.

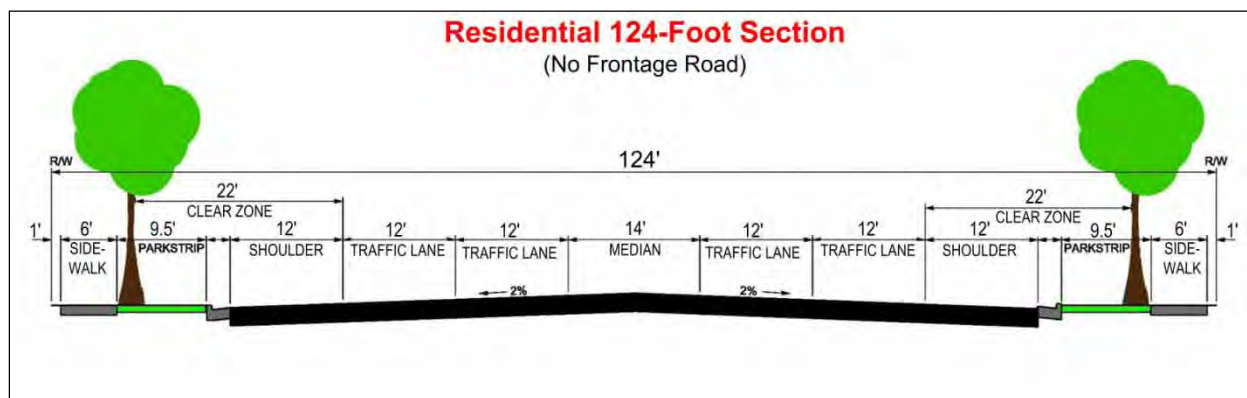


**Figure 2-7. School children walkways to Woodruff Elementary School from residential areas north of 600 South Street.**

Because off-corridor pedestrian access to the school could not be implemented, wider cross section designs were developed to meet the need for a 22-foot pedestrian buffer. These alternatives were developed in coordination with Logan City, neighborhood and Woodruff Elementary School representatives, and were presented to the public for comment.

#### **2.3.4.2 Woodruff Elementary School Neighborhood Refinements**

A 124-foot cross section was developed to expand pedestrian buffering in the Woodruff Elementary School neighborhood (600 South to 200 South Street). The 124-foot cross section is a UDOT design for areas where additional width should be applied for context-sensitive constraints. The 124-foot cross section provides for a wider median and shoulders, which provides further elements of safety and mobility that UDOT would prefer to implement when there is opportunity to address constraints. The typical cross section for this design is illustrated in Figure 2-8. More desirable widths of 14 feet for the center turn lane and 12 feet for shoulders are provided with this section. This wider, 124-foot cross section places elementary school pedestrians a buffered distance of 24 feet from travel lanes on sidewalks and also allows for installation of landscaping enhancements outside the clear zone. Wider paved shoulders and park strips eliminate any constraints with snow storage, and a 6-foot wide sidewalk provides sufficient room for snow removal with Logan City equipment. The elements of the 124-foot cross section were developed in conjunction with Logan City's plans to maintain landscaping and snow removal for this portion of the corridor. Logan City's commitment to maintain



**Figure 2-8. The 124-foot Refinement Alignment with no frontage road.**

landscaping and to remove snow for this segment was made during the public involvement process for the Woodruff Elementary School neighborhood. This commitment has been confirmed by letter (Logan City Letter in Appendix C). Additionally, this cross section includes paved shoulders wide enough to provide for transition to a right turn lane without additional ROW and a wider center turn lane for added turning safety at the 600 South Street and 200 South Street intersections.

Based on these evaluations, the 124-Foot Refinement Alignment would meet the need for a minimum 22-foot pedestrian buffer for the Woodruff Elementary School neighborhood. This section would be implemented only between 600 South and 200 South Street since the residential areas south of 600 South Street on the east side of the corridor have off-corridor pedestrian access to the school (and to avoid impacting the APA on the west side of the corridor in the same area).

An evaluation was conducted as to the possibility of aligning this roadway alternative to the west side of the corridor, the east side, or centering the alignment on the existing roadway. Such shifting may better address the refinement criteria, since additional ROW would be necessary if this refinement were selected. The evaluation of these options in relation to the refinement criteria are evaluated in Table 2-5.

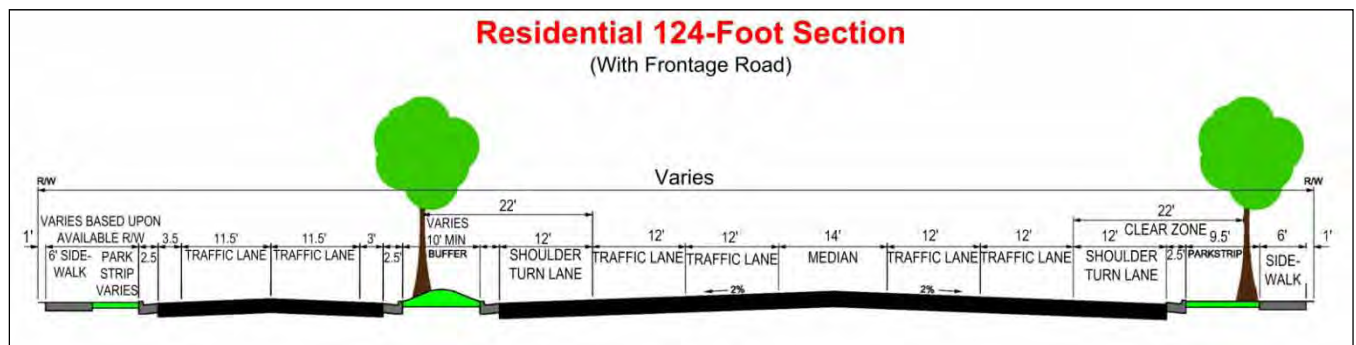
Shifting the 124-foot cross section to the west was deemed preferable to other alignment shifts, because the number of residences taken could be reduced from 26 to 17. Shifting to the west or centering would also avoid a small jurisdictional wetland impact (0.15 acres) that would occur if the alignment were shifted east. Three historically-eligible properties would be taken if the alignment were centered or shifted west. However, the loss of three historic properties was preferred as more practical than taking substantially more residences from the east side of the corridor. The Utah State Historic Preservation Office (SHPO), along with the Logan City Certified Local Government (CLG), has reviewed the necessity of these takes and has agreed that the take of the three historic properties can be mitigated (see SHPO concurrence letter in Appendix C).



**Table 2-5. The 124-Foot Refinement Alternative comparison by alignment siting.**

REFINEMENT CRITERIA	ALIGNMENT SHIFTED EAST	ALIGNMENT CENTERED	ALIGNMENT SHIFTED WEST
Residential right-of-way	4.55 acres	7.13 acres	5.84 acres
Residences acquired	26	24	17
Residential sidewalk buffer	24 feet	24 feet	24 feet
Historic properties taken	0	3	3
Jurisdictional wetland impact	0.15 acre	0 acre	0 acre

The practicality of the 124-foot cross-section aligned to the west was further established when comparing residential property impacts with the 99-foot cross section. Although the 99-foot cross section alternative would require five fewer residential acquisitions than the 124-foot cross section (12 vs. 17 homes); each of the remaining five homes on the west side would lose substantial ROW if the road was widened to 99 feet, with the roadway encroaching within about 15 to 20 feet of the existing homes. The residential community expressed concern that the remaining five homes would be subjected to unnecessary proximity effects. Prior to presenting the 124-Foot Refinement Alignment to the public, this larger cross section was reviewed by a Value Engineering Study Group. The results of the Value Engineering Study recommended that the remaining open space on the west side of SR-252 that would be created by ROW take could be used to construct a frontage road that would have the added benefit of eliminating three local roadways that currently intersect with SR-252. The construction of this frontage road would not require any additional ROW than the 124-Foot Refinement Alignment and would present a solution for the residual property that would remain with the acquisition of the homes on the west side of SR-252. The typical cross section for the 124-Foot Refinement Alignment with frontage road is illustrated in Figure 2-9.



**Figure 2-9. The 124-Foot Refinement Alignment with frontage road.**

The frontage road would provide additional pedestrian buffering as the sidewalk on the west side of SR-252 would be placed on the far west side of the frontage road. The total width of both roadway sections would range from 180 feet to 242 feet depending upon the location of the frontage road as seen in Figure 2-10. The roadway area for the frontage road would be located at minimum 15 feet from the edge of the shoulder on SR-252 and would wind from 600 South Street on the south end connect to Thomas Court on the north end (Figure 2-10). The frontage road section would consist of two 11.5-foot lanes, two 3-foot shoulders, curb and gutter, and a park strip and sidewalk on the west side of the frontage road. The 10-foot minimum buffer between the frontage road and SR-252 would be landscaped consistent with Logan City design standards to the extent it remains consistent with UDOT Project Aesthetics Policy (08A1-3).

The 124-Foot Refinement Alignment with the frontage road was well received by Logan City and Woodruff Elementary School neighborhood residents when presented at public meetings and working groups. The residents occupying the 17 homes that would be taken by this alternative were approached individually with the design and implications regarding their relocation. All 17 homeowners responded with a willingness to accept this alternative subject to reaching individual agreements on property acquisition during the standard UDOT ROW acquisition process (see Section on Special Residential Area Communications 2008-2009 in Appendix B).

#### **2.3.4.3 Woodruff Elementary School Neighborhood Conclusion**

The 124-Foot Refinement Alignment with frontage road was determined to best meet the Project needs in regard to residential pedestrian safety. This alternative would also provide the best opportunities for access management by closing three local street accesses onto the SR-252 corridor within the residential neighborhood. As such, the 124-Foot Refinement Alignment with Frontage Road Alternative aligned to the west was advanced for further consideration.

### **2.3.5 Alternative Refinement at the Agricultural Protection Area**

Another context constraint in the same vicinity of the SR-252 corridor is a dairy farm designated a Cache County APA. The APA is just south of Woodruff Elementary on the west side of the corridor and extends for approximately 1,500 feet. This dairy farm can be seen as the large agricultural area on the west side of SR-252 opposite the residential community in Figure 2-6. Utah State law (UCA 17-41) allows counties to designate APAs as a means of protecting farm landowners from nuisance lawsuits. An APA designation protects landowners from changes in zoning designations unless all landowners within the APA zone provide written approval.

Because the APA located along the SR-252 corridor reflects an ongoing land use designation that is anticipated to continue into the future, it was determined that build alternatives should avoid the APA if practical. A refinement to the 99-Foot Corridor Alternative that could avoid taking APA property was developed. This would require elimination of the sidewalk on the west side of the corridor for this segment extending 1,500 feet. This would reduce the cross section in this limited segment to 94.5 feet. While elimination of the sidewalk would not meet the Project need for continuous sidewalks, it was determined that this need was less important than avoiding impacts to the APA. Pedestrian use is associated with the residential land use on the east side of the corridor in this segment. Additionally, this residential area provides internal pedestrian walkways so that use of the SR-252 corridor sidewalk is not necessary for access to the school.



**Figure 2-10. The 124-Foot Refinement Alignment with frontage road, 600 South to 200 South Street.**



Because it is probable that the dairy farm will continue to be operational in the long term, residential or mixed use on the west side of the corridor within this segment would not be anticipated to occur.

## **2.3.6 Summary of Alternatives Refinement**

After addressing all context constraints associated with the overall corridor, Woodruff Elementary School neighborhood and the APA, a complete corridor design could be specified that would address all Project needs and best meet the refinement criteria of context constraints. The cross section design is summarized as follows.

- A 99-foot, five-lane cross section applied throughout the corridor, except where noted in specified segments:
  - A 124-foot, five-lane cross section with an associated frontage road in the Woodruff Elementary School neighborhood from 600 South to 200 South Street (see Figure 2-9).
  - An 87 to 96-foot, five-lane cross section immediately south of 200 North Street for 700 feet.
  - A 94.5-foot, five-lane cross section in the immediate vicinity of the APA between 1000 South and 600 South. This modifies the 99-foot cross section by eliminating sidewalk on the west side of the corridor for 1,500 feet.
- The corridor design would also include extension of the acceleration lane at the southern terminus intersection with US-89/91 to the UDOT standard 1,440 feet and closure of 1100 West Street at this location with an emergency access “crash gate.”

To accommodate the 99-foot cross section at the Logan River crossing, the existing 46-foot bridge would be widened.

## **2.4 Alternatives Advanced For Detailed Consideration**

### **2.4.1 No-Build Alternative**

While the No-Build Alternative would not meet the needs of the Project, UDOT policy (08A2-4) requires a no-build alternative to be evaluated. The No-Build Alternative provides the baseline future condition against which potential impacts of build alternatives can be evaluated.

### **2.4.2 Build Alternative – Proposed Action**

Through an iterative process, potential alternatives for meeting the Project needs identified in Chapter 1 were developed and evaluated. After considering an alternative to remain within the

existing ROW with a three-lane cross section, it was determined that five lanes were required to meet roadway and intersection capacity needs.

Refinement of the Five-Lane Alternative determined that reducing the corridor cross section to 99-feet would minimize the amount of ROW acquisition necessary to accomplish the Project needs for the majority of the corridor. Unresolved deficiencies and opportunities to address contextual constraints of the corridor in the Woodruff Elementary School neighborhood led to the selection of a wider cross section in this segment of the corridor (124-feet with a frontage road).

In the vicinity of the APA, a minor modification to the 99-foot cross section was identified that would eliminate impacts to the APA by only installing sidewalk on the east side of the corridor for approximately 1,500 feet. Since the west side of the corridor in this vicinity is not planned for future development, it was determined that the need for sidewalk on the APA side was not necessary to accomplish the Project need for continuous sidewalk in this instance.

By incorporating these modifications into the overall design for the build alternative, the Project purpose would be fulfilled while addressing context constraints to the extent practicable. This build alternative was therefore considered the Proposed Action.

#### **2.4.2.1      *Design Components of the Proposed Action***

The components of the Proposed Action are as follows:

- A 99-foot, five-lane cross section applied at all segments in the corridor, except where noted in specified segments:
  - A 124-foot, five-lane cross section with an associated frontage road in the Woodruff Elementary School neighborhood from 600 South to 200 South (see Figure 2-9).
  - An 87- to 96-foot, five-lane cross section immediately south of 200 North Street for 700 feet.
  - A 94.5-foot, five-lane cross section in the immediate vicinity of the APA between 1000 South and 600 South Street. This modifies the 99-foot cross section by eliminating sidewalk on the west side of the corridor for 1,500 feet.
- Extension of the acceleration lane onto southbound US-89/91 westbound by approximately 750 feet.
- Closure of public access to the intersection at 1100 West Street and US-89/91.
- Intersection and turning lane improvements at all major intersections on the corridor.
- New signal controls at the intersections of 1000 West Street with 1000 North Street and 1400 North Street.

- Future signal control at the intersections of 1000 West Street with US-89/91, 1600 South Street and 1800 North Street; also at the intersection of 2500 North Street and 600 West Street. Traffic signal installation would occur only when warranted by future traffic volumes.
- Future signal controls at the intersections of 1000 West Street with 200 South Street and 2500 North Street when they address Corridor Agreement requirements and are warranted by future traffic volumes.
- Continuous sidewalks meeting UDOT standards for design and location.
- Access control consistent with Category 4 requirements, as practicable based upon engineering and environmental constraints.
- Full-depth pavement section replacement meeting UDOT life cycle standards.
- Bridge widening at the Logan River from the existing 46 feet to 99 feet.
- Utility relocations and stormwater drainage system improvements meeting UDOT and clear zone standards.

Acquisition of ROW for the proposed improvements would be primarily in the residential section of the corridor and from 200 South to 200 North Street where the existing ROW is as narrow as 60 feet. Other areas would require minor ROW acquisition, particularly in the areas of intersection improvements at 1000 North Street and 1400 North Street. ROW acquisition would also be necessary in the area of the Logan River Bridge as a result of planned widening to five lanes and the associated bridge embankment areas that would be required. Standard UDOT embankment slopes would be steepened to 2:1 (horizontal:vertical) to reduce impact to adjacent wetlands and property with a guardrail installed on the edge of the road. The ROW would extend to approximately 15 feet beyond the bottom of the slope

Perpetual easements would be necessary in most areas throughout the corridor. The perpetual easements would allow for construction of necessary slopes to tie the proposed roadway section to the existing natural ground. The easements would also provide necessary space for relocation of power poles, to be positioned further from the roadway than in current conditions, thereby providing an enhanced safety condition. The width of the perpetual easement varies based upon slope distances but is generally 10 feet in width through the majority of the corridor. Temporary easements would also be needed in areas where additional access is necessary for construction as well as in areas of minor improvements and adjustments to property features such as driveways. In order to meet UDOT access management policy (Administrative Rule R930-6) for the Project, driveway consolidation and closures at various locations throughout the corridor were extensively investigated and coordinated with property owners. The UDOT policy requires 500-foot spacing between driveway accesses for a Category 4 roadway. However, because of the large number of existing residence and business access points, and in consideration of engineering and environmental impacts, the access policy would be implemented to maintain at least one access point to each property having beneficial use of the land. See Appendix A for a

depiction of proposed access modifications which would require further coordination with the property owners to determine ultimate application of access modifications toward the Category 4 standard.

Drainage facilities including curb and gutter, collection boxes, piping and discharge facilities sufficient to eliminate ponding in the roadway travel lanes would be designed as part of the Proposed Action. The UDOT's minimum standard spacing of 300 feet for drainage collection boxes would be applied, along with the use of curb inlet catch basins to effect this improvement. Continuous curb and gutter would be applied for the Proposed Action meeting UDOT standards for design and location. This would include 2.5-foot curb and gutter sufficient to provide for needed drainage improvements as well as a defined roadway edge.

#### **2.4.2.2 Construction Phasing**

The SR-252 Proposed Action would be constructed in phases as funding is secured by UDOT. Current funding is anticipated to cover construction of areas on the south end of the corridor from US-89/91 to SR-30 (200 North Street) and on 2500 North Street from 600 West Street to US-91. Traffic signal installations at 1000 North Street and 1400 North Street are also expected to be installed during the initial construction phase.





**CHAPTER 3**  
**ENVIRONMENTAL RESOURCES**  
**AND IMPACTS**



## **3.0 ENVIRONMENTAL RESOURCES AND IMPACTS**

This chapter describes the existing environmental resources of proposed State Route 252 (SR-252)/1000 West Corridor Improvement Project Area (Project Area) including natural, built, and socioeconomic resources. Each section describes the information sources and the methods used to identify these resources. Each section also provides a detailed evaluation of impacts that could result from alternatives advanced from Chapter 2: the No-Build Alternative and the Proposed Action. Proposed mitigation for identified impacts is also described.

### **3.1 Land Use**

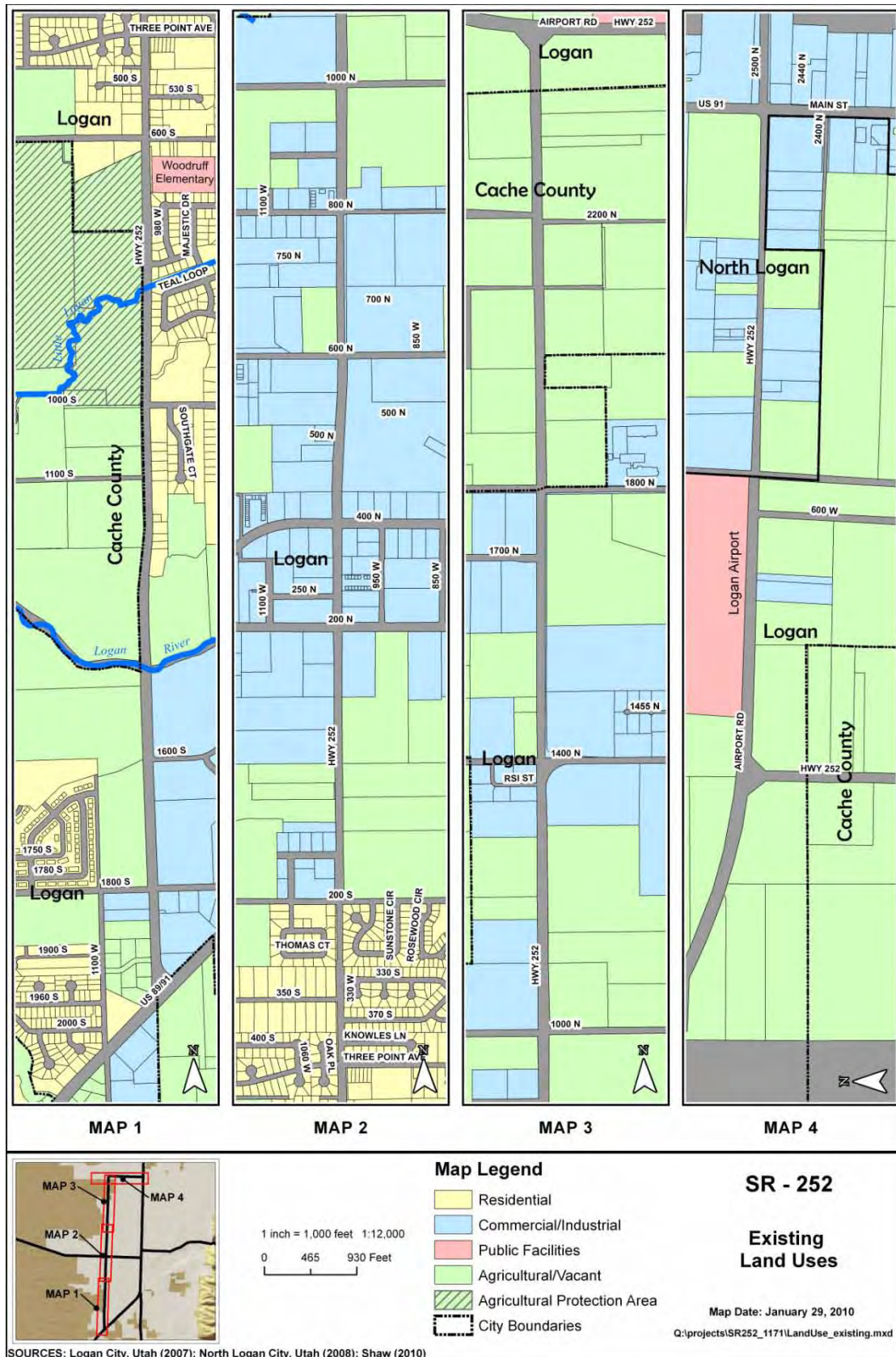
Existing land uses adjacent to the SR-252 corridor were determined using City of Logan and City of North Logan planning documents, Geographic Information System (GIS) layers available from the State of Utah, aerial imagery obtained for designing the Proposed Action, and through direct observation.

#### **3.1.1 Existing Conditions**

Existing land uses are illustrated in Figure 3-1. Existing land uses are primarily interspersed commercial and agricultural. Residential development occurs on the east side of the corridor between the Logan River and 600 South Street and on both sides of the corridor between 600 South and 200 South Street (Woodruff Elementary School neighborhood area). Planned land uses are illustrated in Figure 3-2. In the Logan General Plan (City of Logan 2007) the county land on the west side of the corridor is planned for annexation into Logan with the planned use as residential. The only other planned residential growth is on the east side of the corridor from existing residential development to approximately the Logan River.

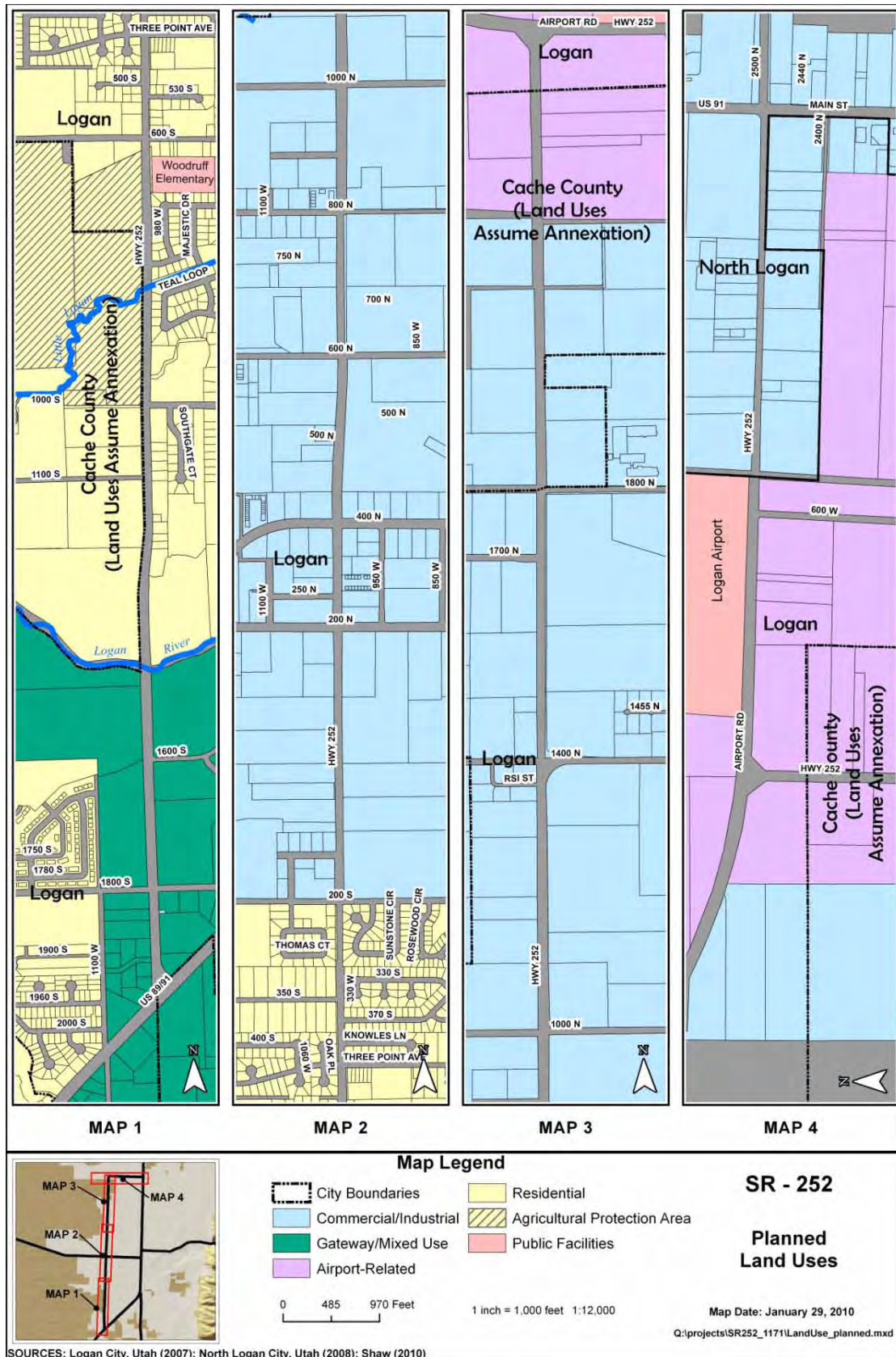
In the Logan General Plan (City of Logan 2007), the south end of the SR-252 corridor is planned for “gateway” development (Figure 3-2). This designation includes both sides of U.S. Highway 89/91 (US-89/91) at the southern terminus of SR-252 and continues north on both sides of SR-252 to the Logan River. In the Logan General Plan, the gateway designation is intended to develop quality highway entrances to the City. Appropriate development includes commercial uses, corporate campuses, and recreation. As described in the General Plan, “gateways are characterized by attractive buildings with large setbacks from the primary roadway, highlighted by gracious landscapes or natural areas. Gateway development will preserve open spaces and vistas in order to reinforce the picturesque setting of Cache Valley” (City of Logan 2007).

The remainder of the SR-252 corridor (from 200 South to 2500 North Street and then continuing east along 2500 North Street to the northern terminus of SR-252 at US-91) is either existing or planned commercial or industrial development. As illustrated in Figure 3-2, parcels adjacent to the Logan Airport along 2500 North Street are planned for airport-related development. This land use designation is intended to promote the development and enhancement of the airport by encouraging commercial uses that typically support airports (e.g. hotels, restaurants) as well as offices and industrial uses that typically require proximity to an airport (City of Logan 2007). A portion of the 2500 North Street corridor lies in North Logan and likewise has either existing or planned commercial/industrial development land uses (City of North Logan 2008).



**Figure 3-1. Existing land uses adjacent to the SR-252 corridor.**





**Figure 3-2. Planned land uses adjacent to the SR-252 corridor.**



### 3.1.2 Impact Assessment

Impacts to land use occur when existing land uses change in response to a proposed project. Impacts can be positive, as when project-related activities support development that is consistent with local land use or zoning plans. Adverse impacts occur when any project-related activities:

- contradict local land use, zoning, or economic development plans, or prohibit such plans from being carried out;
- limit access to, or impede the function of, existing agricultural lands and irrigation ditches; or
- negatively affect existing utilities, including disruption of utility lines or utility services for long periods of time, or prohibit the future expansion of utility services.

#### 3.1.2.1 No-Build Alternative

The No-Build Alternative would not affect existing or planned land uses along the SR-252 corridor. In accordance with the Corridor Agreement, described in Chapter 1, future development along the corridor would need to be consistent with the Category 4 access management policy. As such, the Utah Department of Transportation (UDOT) would manage requests for new access points consistent with Access Management Category 4 as defined in Administrative Rule R930-6, *Accommodation of Utilities and the Control and Protection of State Highway Rights of Way* (2006). The No-Build Alternative would not provide an opportunity to reduce current excessive access points or improve efficient access/egress to existing developments.

#### 3.1.2.2 Proposed Action

The final design for the Proposed Action would require the addition of 12.08 acres to the existing SR-252 right-of-way (ROW). In terms of existing land uses, this property acquisition would convert 2.86 acres of agricultural, 2.57 acres of commercial, and 6.65 acres of residential land use to transportation land use (see Section 3.4 regarding the property acquisition process). Since the proposed improvements to the roadway are consistent with existing and planned land uses and property acquisitions are all immediately adjacent to the existing corridor, the Proposed Action would not have negative impacts to existing or future land uses.

The UDOT would manage access points consistent with Access Management Category 4 as defined in Administrative Rule R930-6, *Accommodation of Utilities and the Control and Protection of State Highway Rights of Way* (2006). This would likely reduce access for existing commercial and business parcels that currently maintain more accesses than designated for a Category 4 corridor. Limiting access points may be considered restrictive by commercial landowners, since all businesses desire as many access points as possible. However, efficient access would be maintained so as not to affect the existing or planned use of any parcel along the corridor. The SR-252 design team worked extensively with existing businesses and other landowners to determine property access needs for existing and reasonably foreseeable land uses. The access management plan for the Proposed Action is illustrated in Appendix A. The design team also coordinated with the City of Logan, local irrigation companies, and individual property

owners in determining how to accommodate existing and planned utility service infrastructure and irrigation facilities as part of the Proposed Action.

### **3.1.3 Mitigation**

All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 USC 4601 *et seq.*, as amended 1989).

## **3.2 Farmland**

This section addresses the potential for impacts of the proposed alternatives on farmland, including cropland and farmland designated as prime, unique, or state important. Farmland impacts were evaluated based on information from several sources including information from soil surveys of Cache County, field surveys along the corridor, reviews of Project aerial maps, and reviews of city zoning maps.

### **3.2.1 Regulatory Context**

#### **3.2.1.1 Farmland Protection Policy Act**

The Farmland Protection Policy Act of 1981 (FPPA) was intended to “minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses” (7 United States Code [U.S.C.] 4201(b)).

To achieve that goal, the FPPA (7 U.S.C § 4202(b)) directs federal agencies to identify the quantity of farmland actually converted by federal programs; to identify and take into account the adverse effects of federal programs on the preservation of farmland; consider alternative actions, as appropriate, that could lessen such adverse effects; and assure that such federal programs, to the extent practicable, are compatible with state, unit of local government, and private programs and policies to protect farmland.

As defined in the FPPA, “farmland” includes prime farmland, unique farmland, and farmland of state or local importance. Prime farmland is land that “has the best combination of physical and chemical characteristics for producing” agricultural crops. Unique farmland is land “other than prime farmland that is used for production of specific high-value food and fiber crops,” as determined by the Secretary of Agriculture. Farmland of state or local importance is farmland, other than prime or unique farmland, that is of statewide or local importance for the production of agricultural crops. The term “farmland” does not include land already in or committed to urban development or water storage (7 U.S.C. 4201(c)(1)).

For actions that could affect farmland, the FPPA requires federal agencies to prepare a Farmland Conversion Impact Rating Form. The federal agency responsible for overseeing compliance with the FPPA is the Natural Resources Conservation Service (NRCS). The NRCS has stopped making determinations on possible prime, unique, and statewide or local important farmland that is already committed to development within city limits. The NRCS’s position is that, when funds have already been committed for utilities, water lines, and road replacement and widening, the land is committed to development and can be exempt from a determination. Appendix C includes

a copy of the NRCS guidance letter that suspends the requirement to make determinations on farmland that is already committed to development through local actions.

### **3.2.1.2 Agriculture Protection Areas (APAs)**

Utah law allows the formation of Agriculture Protection Areas (APAs), which are geographic areas where agricultural activities are given special protections. Agriculture Protection Lands are devoted to agricultural use and are identified as APAs according to Utah's Farmland Assessment Act. These APAs are protected from state and local regulations that would restrict farm practices, unless the regulations are required for public safety or are required by federal law. The county in which the APA is located cannot change the zoning designation of the land within the APA unless all landowners approve the change in writing.

Counties record (enroll), assess, and evaluate lands protected under the Farmland Assessment Act. Taxes on APAs are assessed based on the enrolled lands' productive value.

Agriculture Protection Areas cannot be condemned for highway purposes unless (1) the landowner requests removal of the designation or (2) the applicable legislative body (that is, the legislative body of the county, city, or town in which the APA is located) and the county board that advises on APAs approve the condemnation, provided that "there is no reasonable and prudent alternative to the use of the land within the Agriculture Protection Area for the project" (Utah Administrative Code, Section 17-41-405 (4)(a)). If areas that are designated as APAs remain in agricultural use after adjacent land is developed, the developers must maintain access for farm equipment so that landowners can move farm machinery between parcels.

A landowner can petition the County to have his or her land designated as an APA. Once granted, APA status is typically maintained even after the property is developed and no longer in agricultural use, unless the property owner files a petition to remove the land from the APA. When this occurs, the rest of the APA maintains its status, and the boundaries of the APA are redrawn. All APAs are reviewed every 20 years by the County to determine if the APA status should be maintained, modified, or terminated.

## **3.2.2 Existing Conditions**

### **3.2.2.1 Farmlands**

Though it is not specifically regulated under state law, local agricultural production is an indication of the overall agricultural productivity in and the importance of agriculture to the Project Area. Many parcels of land along the SR-252 corridor that are currently in agricultural use or are zoned for agricultural use are described in city and county land-use plans as being designated for industrial, commercial, and residential development. This designation reflects the trend to convert agricultural land to other uses.

Existing farmlands in the Project Area are used for cultivation (cropland), livestock grazing, and dry pasture, although some of the land traditionally used for agriculture is idle. Active agricultural production in the Project Area generally focuses on dairy, pasture, grass hay, and cultivated crops including alfalfa and corn.

According to the 2007 Census of Agriculture (USDA 2007), the top five commodities in Cache County are:

1. milk and other dairy products;
2. cattle and calves;
3. other crops and hay;
4. grains, oilseeds, dry beans, and dry peas; and,
5. other animals and other animal products.

### **3.2.2.2      *Agriculture Protection Areas (APAs)***

A dairy farm and some croplands located along the SR-252 corridor are within a Cache County APA. These lands are illustrated in Figure 3-1. With the exception of the designated APA, the rest of the SR-252 corridor is urbanized as indicated by the City of Logan and City of North Logan zoning and as described in the previous section (City of Logan 2007, City of North Logan 2008).

## **3.2.3      *Impact Assessment***

Impacts to farmland occur when a transportation project directly or indirectly removes protected farmland from production.

### **3.2.3.1      *No-Build Alternative***

Under the No-Build Alternative, no improvements would be made to SR-252, so no direct impacts to farmland would occur as a result of the Project. In addition, the No-Build Alternative would not cause any indirect impacts to farmland. However, farmland would continue to be affected and/or altered by the ongoing and planned development in the area.

### **3.2.3.2      *Proposed Action***

Under the FPPA (7 USC § 4201(b)), protected farmland does not include land already in or committed to urban development. As discussed in Section 3.2.1.1, NRCS no longer makes determinations on possible prime, unique, and statewide or local important farmland that is already committed to development within city limits. The NRCS's guidance also recommends that no FPPA determinations be made where local zoning takes precedence, specifically, for bridge replacement, road widening, new roads, and for conversions of less than 1 acre (NRCS policy guidance letter dated April 30, 1999).

While there are existing agricultural uses adjacent to the corridor, as illustrated in Figure 3-1, the City of Logan's current land use only includes a small number of areas used for agriculture. There is an area designated as agricultural land use at the northern end of the corridor (near 1800 North Street). However, under the Proposed Action SR-252 would remain within its current ROW north of 1400 North Street. There is also an area designated as agricultural at the southern end of the corridor (near 1600 South Street). The Logan General Plan (City of Logan 2007) identifies all future land uses adjacent to the corridor as commercial, industrial, or residential development (see Section 3.1.1 and Figure 3-2).

The Proposed Action design was modified to avoid impacts to the County-designated APA as discussed in Chapter 2 (Section 2.3.5). The SR-252 design team worked extensively with the APA landowner to develop access modifications that would not inhibit agricultural operations. Other agricultural landowners along the corridor were contacted and invited to public meetings to ensure the Proposed Action maintains access to lands currently used for agricultural purposes.

### **3.2.4 Mitigation**

The Proposed Action would not impact federally protected farmlands and would not impact a County-designated APA, therefore no mitigation is required.

## **3.3 Social Impacts and Environmental Justice**

This section describes the existing social context of the SR-252 corridor and the potential impacts of Project alternatives. It also screens residential areas adjacent to the corridor for protected populations (low-income or racial/ethnic minority populations). Information sources for these evaluations included the 2000 Census, the 2006 American Community Survey, the National Center for Education Statistics, local government planning documents, comments from the public obtained through public involvement activities, and direct observation.

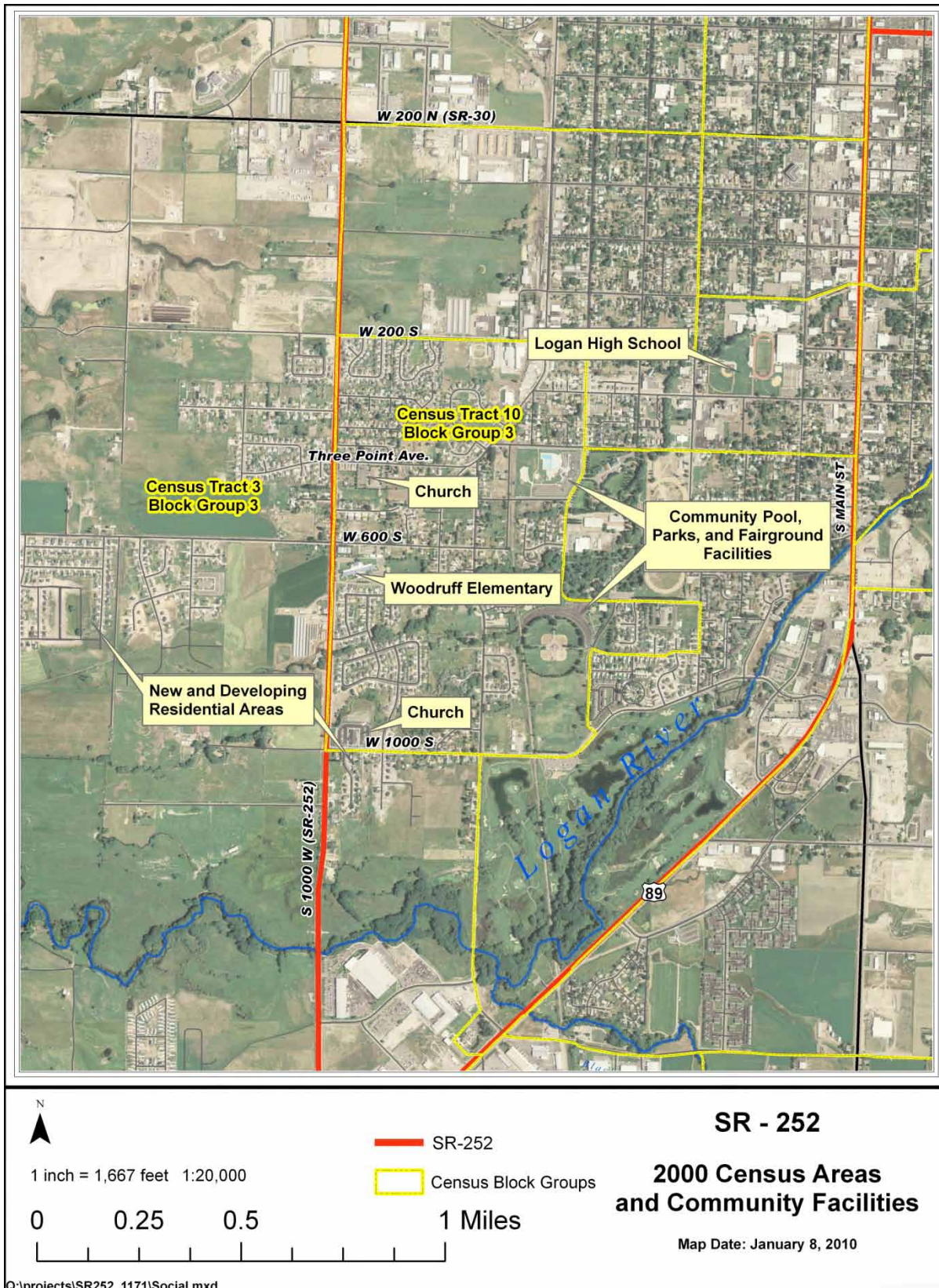
Census data was analyzed at the Block Group geographic level as that is the most precise grouping that provides income data. SR-252 is the boundary between two block groups: Census Tract 10, Block Group 3 east of SR-252 and Census Tract 3, Block Group 3 west of SR-252 (Figure 3-3). Census Tract 3, Block Group 3 (west of SR-252) is geographically large, since it is comprised primarily of agricultural land use. The concentrated residential areas within this block group are located along SR-252 and along US-91. The geographic extent of this block group is from SR-252 west about 4.5 miles to the Little Bear River and Bear River and from US-91 north for approximately 8.5 miles to approximately 3000 North. The extent of this block group precludes the depiction of boundaries on Figure 3-3. Census Tract 10, Block Group 3 boundaries are shown on Figure 3-3.

### **3.3.1 Existing Social Environment**

The residential portion of the SR-252 corridor occurs between the Logan River and the intersection of 200 South Street (Figure 3-1). Older homes in the area were primarily farmsteads located along the corridor and in the vicinity of the 600 South intersection (Mendon Road) (see Section 3.6: Cultural Resources). These older homes are now surrounded by newer residential subdivisions.

Available census demographic data indicates that the residential portion of the corridor is primarily composed of owner occupied, single family residences (Table 3-1). Based on the census data, neighborhoods along the SR-252 corridor did not have a disproportionate low income population compared to surrounding neighborhoods in Cache County or the Logan Urbanized Area. (Census Tracts are illustrated in Figure 3-3.) However, in terms of minority





**Figure 3-3. Tract block groups and community facilities for the SR-252 corridor residential neighborhoods (2000 Census).**



**Table 3-1. Population and household characteristics.**

CHARACTERISTIC	AMERICAN COMMUNITY SURVEY 2006		CENSUS 2000			
	Cache County	Logan Urbanized Area	Cache County	Logan Urbanized Area	Tract 10 Block Group 3 (east of SR-252 <sup>a</sup> )	Tract 3, Block Group 3 (West of SR-252 <sup>b</sup> )
<b>Households</b>						
Total number	31,100	26,490	27,597	23,304	421	653
Percent family households, 3 or more persons	64.7	63.10	66.4	65.2	83.8	70.0
Percent owner occupied units	64.6	59.7	64.6	60.7	77.4	92.4
Percent minority owner occupied	5.0	5.8	3.9	4.4	16.5	6.7
<b>Population</b>						
Total population	98,662	83,784	91,391	76,141	1,818	2,338
Percent below poverty level	13.2	14.3	13.6	14.9	13.6	3.10
Percent minority race or ethnicity	NA <sup>c</sup>	NA <sup>c</sup>	10.1	11.0	32.2	14.7

Sources: U.S. Census (2000) and U.S. Census American Community Survey (2006).

<sup>a</sup> Approximate geographic location of Block Group 3 (Tract 10) is shown on Figure 3-3.

<sup>b</sup> Approximate geographic extent of Block Group 3 (Tract 3) is from SR-252 west about 4.5 miles to the Little Bear River and Bear River and from US-91 north for approximately 8.5 miles to approximately 3000 North. The Block Group is predominantly agricultural with residential only in the localized area of 1000 West. The size precludes depiction on Figure 3-3.

<sup>c</sup> Data not available.

populations, neighborhoods on the east side of the corridor did have higher proportions of minority race/ethnic populations (32.2 percent) compared to the west side of the corridor (14.7 percent). Comparable figures for Cache County and the Logan Urbanized Area were 10.1 percent and 11.0 percent respectively.

Community facilities and institutions such as schools, churches, and parks provide opportunities for social interaction and cohesiveness of neighborhoods. Community facilities and institutions near the SR-252 corridor are illustrated in Figure 3-3. All of the neighborhoods in the area are served by Woodruff Elementary School. Woodruff has an enrollment of 556 students (NCES 2010). The Church of Jesus Christ of Latter-Day Saints (LDS) has two churches in the residential area serving members residing in neighborhoods on both sides of the Project corridor. The Logan Stake Center, located at 940 Three Point Avenue, serves two Logan LDS Wards, as does the church located at 993 West 1000 South.

An important characteristic of the SR-252 residential community is that community facilities and institutions are all located on the east side of the corridor (Figure 3-3). The elementary school and neighborhood churches just described are located adjacent to the corridor, while Logan High School, major City parks and recreational facilities, commercial business areas, police, and fire protection are located further to the east in central Logan.

Local roads that provide access and connectivity from the west side neighborhoods to the east side community facilities are 200 South, Three Point Avenue, and 600 South. For pedestrians, most of the length between 200 South and 600 South currently has sidewalks on both sides of the

street except for a section on the west side from 200 South to 350 South. The intersection at 600 South is the only designated east-west crosswalk in the Woodruff Elementary School neighborhood. This intersection has an existing traffic signal with pedestrian controls. This intersection is also controlled by school crossing guards that support pedestrian travel both before and after Woodruff Elementary School hours.

### **3.3.2 Impact Assessment**

Social impacts occur when transportation improvements either directly or indirectly affect the existing social structure of human communities within a Project Area. Such impacts can include:

- Adverse changes in existing social patterns, such as residential displacements that can affect neighborhood cohesiveness;
- Segmenting or isolating portions of neighborhoods or social groups;
- Direct impacts to community facilities and institutions (such as property acquisition) or indirect effects (such as reducing neighborhood access to these facilities);
- Impacts to public safety such as pedestrian facilities or access to neighborhoods by police and fire protection;
- Disproportionate impacts to specific social groups including low-income populations and minority populations.

Comments from SR-252 public meetings indicated that neighborhood residents were concerned about safe pedestrian access between neighborhoods and to and from community facilities inside and outside of the neighborhood areas. Residents were particularly concerned about pedestrian safety along the corridor, especially in winter months when snow removal makes sidewalks less passable. Many residents expressed a preference for a wide buffer (park strip) between sidewalks and lanes of travel between 600 South and 200 South where school children walk to Woodruff Elementary School.

#### **3.3.2.1 No-Build Alternative**

The No-Build Alternative would not require property acquisition or residential relocations. Under the No-Build Alternative, there also would not be an opportunity to address the growing traffic congestion or to improve safety for pedestrians, especially children, in the Woodruff Elementary School neighborhood. As traffic volumes increase, residents' concerns about pedestrian safety in this segment of the corridor would likely increase. The No-Build Alternative would not have disproportionate effects for any social groups in the Woodruff Elementary School neighborhood.

#### **3.3.2.2 Proposed Action**

The Proposed Action would relocate 17 homes to accommodate a 124-foot cross section allowing for a 22-foot pedestrian buffer while meeting the traffic capacity needs of the corridor. The idea of widening the corridor in the Woodruff Elementary School neighborhood to

accomplish the pedestrian buffer originated with an informal “ad hoc safety committee” comprised of homeowners who presented the idea to the Logan City Municipal Council in December 2008 (Appendix B). The City of Logan subsequently sent a letter to the UDOT on March 17, 2009 in support of the neighborhood resident’s interests (Appendix C). A series of meetings and workshops with City of Logan and the 17 homeowners were then held between April and June 2009 to determine the homeowners concerns and willingness to relocate should the wider cross section be implemented (see Public Involvement Summary, Appendix B). At the conclusion of these sessions, strong support was expressed by participating neighborhood residents and potentially affected homeowners for the proposed design.

The 124-foot cross section design with frontage road was then presented at a public meeting held at Woodruff Elementary School in July 2009 and at a Woodruff Parent-Teacher Association meeting, also in July 2009. The majority of comments at both of these meetings were supportive of the 124-foot cross section design with frontage road over previous conceptual designs that would not have met the need for pedestrian buffering along this portion of the SR-252 corridor.

Should displaced homeowners wish to remain in the neighborhood to maintain existing neighborhood relations or family relations, housing is currently available in the immediate and general area. A site review in January 2010 identified four homes for sale in the immediate neighborhood west of SR-252, and 11 homes for sale in the neighborhood immediately east of SR-252. An additional 11 residences were available in the residential developments west of SR-252 and accessed by 600 South. As such, it is unlikely that relocations would disrupt neighborhood relationships or cohesiveness.

Because the Proposed Action follows an existing roadway corridor, the proposed design would not segment or isolate portions of neighborhoods or social groups. A west side frontage road, improved sidewalk facilities and pedestrian buffering on both sides of the corridor, landscaping enhancements, and snow removal by City of Logan would improve pedestrian accessibility and safety. Access to community facilities would not be affected compared to existing conditions or No-Build conditions. Sidewalks along the corridor would be completed on both sides and the pedestrian crossing at the 600 South intersection would be maintained. Also when future traffic volumes warrant and access management requirements are met, a traffic signal at the 200 South intersection would be installed, enhancing pedestrian access across the corridor. Access to neighborhoods by police and fire protection would not be affected.

The Proposed Action would not have disproportionate impacts to any minority population or low income population. A low-income population was not identified in the Project area and a disproportionately higher minority population (identified on the east side of the corridor) would not be affected by relocations and would not be disproportionately affected by any of the potential effects of the Proposed Action described in this State Environmental Study. Residents of the Woodruff Elementary School neighborhood would also benefit equally from proposed enhancements to the corridor.

### **3.3.3 Mitigation**

The Proposed Action would not adversely affect the existing social context of the corridor. No mitigation would be required beyond adherence to Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 USC 4601 *et seq.*, as amended 1989). The property acquisition process is described in detail in the next section.

## **3.4 Property Acquisition and Relocations**

Relocations are necessary when transportation improvements require the acquisition of entire parcels of real property. In other instances transportation improvements require acquisition of real property that does not require relocation, but would reduce the landowner's property fronting the SR-252 corridor. The SR-252 design team determined property acquisition that would be necessary for the Proposed Action by surveying and mapping the corridor.

### **3.4.1 Existing Conditions**

The existing SR-252 ROW is 99 feet wide through the majority of the corridor, however some segments are as narrow as 60 feet, necessitating ROW acquisition to implement the Proposed Action. Property parcels in relation to the SR-252 corridor are shown on the map sheets in Appendix A.

### **3.4.2 Impact Assessment**

The following criteria were used in determining potential total property acquisition and relocation impacts.

- Direct impact to residential homes or commercial buildings, not including structures ancillary to operations;
- Loss of property access with no opportunity for mitigation; or
- The edge of construction disturbance is within 15 feet of a residential homes or primary commercial buildings.

The last criterion is an estimated distance based on standard UDOT practice for preliminary assessment of potential acquisitions. The actual distance where full property acquisition is required would be determined during final design and the formal ROW acquisition process. The evaluated relocation impacts are based on the preliminary design of the Proposed Action. Actual relocation and property acquisition may vary due to changes in final project design or changes in the characteristics of the property themselves, although the degree to which the impacts change is not anticipated to be substantial.

#### **3.4.2.1 No-Build Alternative**

The No-Build Alternative would not require any property acquisition, and therefore would not have relocation impacts.

### **3.4.2.2 Proposed Action**

The existing and proposed ROWs are presented on the map sheets in Appendix A. These maps also illustrate the property acquisitions necessary for implementation of the Proposed Action.

#### **3.4.2.2.1 Total Property Acquisitions**

Seventeen single family residences would be acquired by the Proposed Action. The acquisitions would include the homes as well as the entire residential parcels. All residents would require relocation. As described in Chapter 2 (2.3.4.2) the residents occupying the 17 homes were approached individually with the Proposed Action design and the implications regarding their dislocation. All 17 homeowners responded with a willingness to accept the Proposed Action subject to reaching individual agreements on property acquisition during the UDOT ROW acquisition process.

Relocation within Logan is not anticipated to be a concern. In February 2010, the Logan real estate market had 116 homes for sale in the \$150,000 – \$250,000 price range (Cornerstone 2010). Should displaced homeowners wish to remain in the neighborhood to maintain existing neighborhood relations or family relations, housing is currently available in the immediate and general area. A site review in January 2010 identified four homes for sale in the immediate neighborhood west of SR-252, and 11 homes for sale in the neighborhood immediately east of SR-252. An additional 11 residences were available in the residential developments west of SR-252 and accessed by 600 South. As such, it is unlikely that relocations would disrupt neighborhood relationships or cohesiveness.

#### **3.4.2.2.2 Partial Property Acquisitions**

Partial acquisition varies depending upon the existing ROW width. Because the existing ROW through most of the commercial area is already 99 feet, there would only be minor property acquisition for fill slopes and access. Where the existing ROW is narrow (between 200 North and 200 South) partial acquisition strips would be wider. The map sheets in Appendix A depict the partial acquisition strips by parcel for the entire corridor. Partial property acquisition would be required from 27 residential properties, 40 commercial properties, and 13 agricultural properties.

### **3.4.3 Mitigation**

All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 USC 4601 *et seq.*, as amended 1989). This law states that all property owners shall receive fair market value for their property. Property acquisition will be administered by the UDOT Right of Way Division. The fair market value is determined by an approved, independent appraiser. The property owner has the right to be present during the appraisal property inspection and can bring to the appraiser's attention any characteristics pertinent to the appraisal. The owner may provide additional information, and make reasonable counter offers and proposals for consideration.

Relocations for the 17 residential households will be conducted with adherence to the Uniform Relocation Assistance and Real Property Acquisition Act of 1970. Relocation resources will be available to all without discrimination.

In the event a project impacts only a portion of an owner's property, UDOT would pay fair market value for the land and improvements that are actually impacted. Owners may receive proximity damages or payment for an easement depending on the property and the appraisal valuation. Proximity damages are only available to those whose property is directly impacted.

## **3.5 Visual and Aesthetic Resources**

One of the most readily recognized effects of a transportation project is its visual presence. Aesthetic qualities are also important in regional and local planning efforts as these qualities affect the attractiveness of communities as places to locate businesses and as places to live. The public nature of roadways implies that visual impacts of transportation projects—both positive and negative—should be addressed in the environmental study phase. Impacts to visual resources are assessed based on addressing local land use planning objectives, the amount of visual change within a view shed resulting from implementation of a project, and the effects of those changes as perceived by viewers.

### **3.5.1 Existing Conditions**

For transportation facilities like SR-252, the public is typically more sensitive to visual changes within residential areas and to public use areas, such as parks. There are no existing parks along the SR-252 corridor; however, the City of Logan owns a parcel adjacent to the Logan River on the west side of the corridor south of the river that may be developed as a future park as part of the “gateway” land use area in the southern portion of the corridor (see Section 3.1 and Figure 3-2). Residential areas, illustrated in Figure 3-1, occur on the east side of the corridor between the Logan River and 600 South and on both sides of the corridor from 600 South to 200 South.

### **3.5.2 Impact Assessment**

Visual impacts from transportation projects can be said to include either short-term impacts from construction or long-term impacts due to permanent alterations of the landscape. Permanent alterations may include changes to topography, vegetation, and structures.

#### **3.5.2.1 No-Build Alternative**

Under the No-Build Alternative there would be no changes to SR-252. Land uses would continue to change along the corridor consistent with general plans and views from the corridor would be as expected from a regional urban corridor. As such, there would be no changes to the visual characteristics of the corridor or from the corridor.

#### **3.5.2.2 Proposed Action**

The Proposed Action would maintain the general visual aspects of a transportation corridor that currently exists on SR-252. Line, form, texture and structural elements would be similar for most of the corridor and conform to observer expectancy for the commercial and agricultural land use areas. The typical section of the Proposed Action within the commercial and agricultural areas does not accommodate park strips. Thus there is not an opportunity in these areas to enhance the visual aspect of the corridor through plantings. Planned setbacks and property development planned for the gateway area between US-89/91 and the Logan River as



part of the visual appeal of this area (see section 3.1) would not be affected by the Proposed Action.

The most substantial visual changes resulting from the Proposed Action would occur in the Woodruff Elementary School neighborhood between 600 South and 200 South where 17 residential properties would be taken. However, the design for this segment of the corridor has been developed in concert with the local community and as a context-sensitive approach that consists of expanded park strip elements that would be landscaped. As such, the Proposed Action would have a beneficial effect on the visual qualities of this residential neighborhood.

While actual design elements, such as street lighting and trees, would be determined as a part of the final design, it is expected that landscaping would be developed utilizing a Context-Sensitive Solutions approach and would be funded as part of the overall Project. The final design would be done in coordination with City of Logan to use their residential landscape designs wherever possible given engineering and fiscal constraints. The City of Logan has agreed to maintain the residential landscaping and provide for street lighting enhancements within the segment between 600 South and 200 South (see Appendix C). All park strip and frontage road areas would remain part of the state-owned ROW. The landscaped ROW would function as a buffer to the sidewalks and local residences, but would not be designated for formal recreational use.

### **3.5.3 Mitigation**

The Proposed Action would not adversely affect the visual character of the existing corridor in commercial or agricultural areas. The Proposed Action would enhance the visual characteristics of the Woodruff Elementary School neighborhood between 600 South and 200 South. No mitigation is necessary.

## **3.6 Cultural Resources**

Cultural resources include historic buildings and structures, and archaeological sites. Besides historic buildings, architectural resources can include bridges, culverts, and other structures such as monuments and historic agricultural resources such as hay derricks. Archaeological sites include artifact sites that have material remains indicative of past human activity and also linear features such as railroads, canals, and roads that have historic significance. The purpose of cultural resource investigations under Section 106 of the National Historic Preservation Act and Utah Code Annotated (UCA) 9-8-404 is to consider the effects of undertakings on cultural resources that are listed or eligible for listing on the National Register of Historic Places (NRHP).

### **3.6.1 Existing Conditions**

A cultural resources inventory, including a Class I records search, an intensive-level pedestrian field survey, a historic architectural resources survey, and consultation with Native American tribes were conducted for the Area of Potential Effects (APE). Through these investigations, 14 cultural resources including both historic buildings and archaeological sites were identified (see Johnson 2008a; Johnson 2008b; Johnson 2008c; Johnson 2009).

### **3.6.1.1 Architectural Resources**

During the building reconnaissance survey of the APE, ten properties with historic buildings were identified (Johnson 2008a). Six of these properties, listed in Table 3-2 were determined eligible for the NRHP. The other four properties had structural additions and/or renovations that compromised the historic integrity of the structures and were recommended not eligible for the NRHP. The properties that were determined eligible are also identified in Figure 3-4.

### **3.6.1.2 Archaeological Resources**

One previously known archaeological resource and three new historic archaeological resources were recorded in the Cultural Resources Inventory completed for this Project (Johnson 2008b). These resources are listed in Table 3-3. The known resource that was determined eligible for the NRHP is the Utah Northern/Oregon Short Line Railway. The new sites consisted of two sites with farm-related outbuildings and the Logan Benson Canal. The outbuilding sites could not be related to any known historic properties, historic events, people, or locations. Therefore, these sites were determined to not be eligible for the NRHP and not contributory to a larger complex. The Logan Benson Canal represents one of the earliest irrigation canals in the Cache Valley and was determined eligible. The locations of the historic railroad grade and the Logan Benson Canal are illustrated in Figure 3-4.

## **3.6.2 Impact Assessment**

### **3.6.2.1 No-Build Alternative**

Under the No-Build Alternative, there would be no effects to cultural resources.

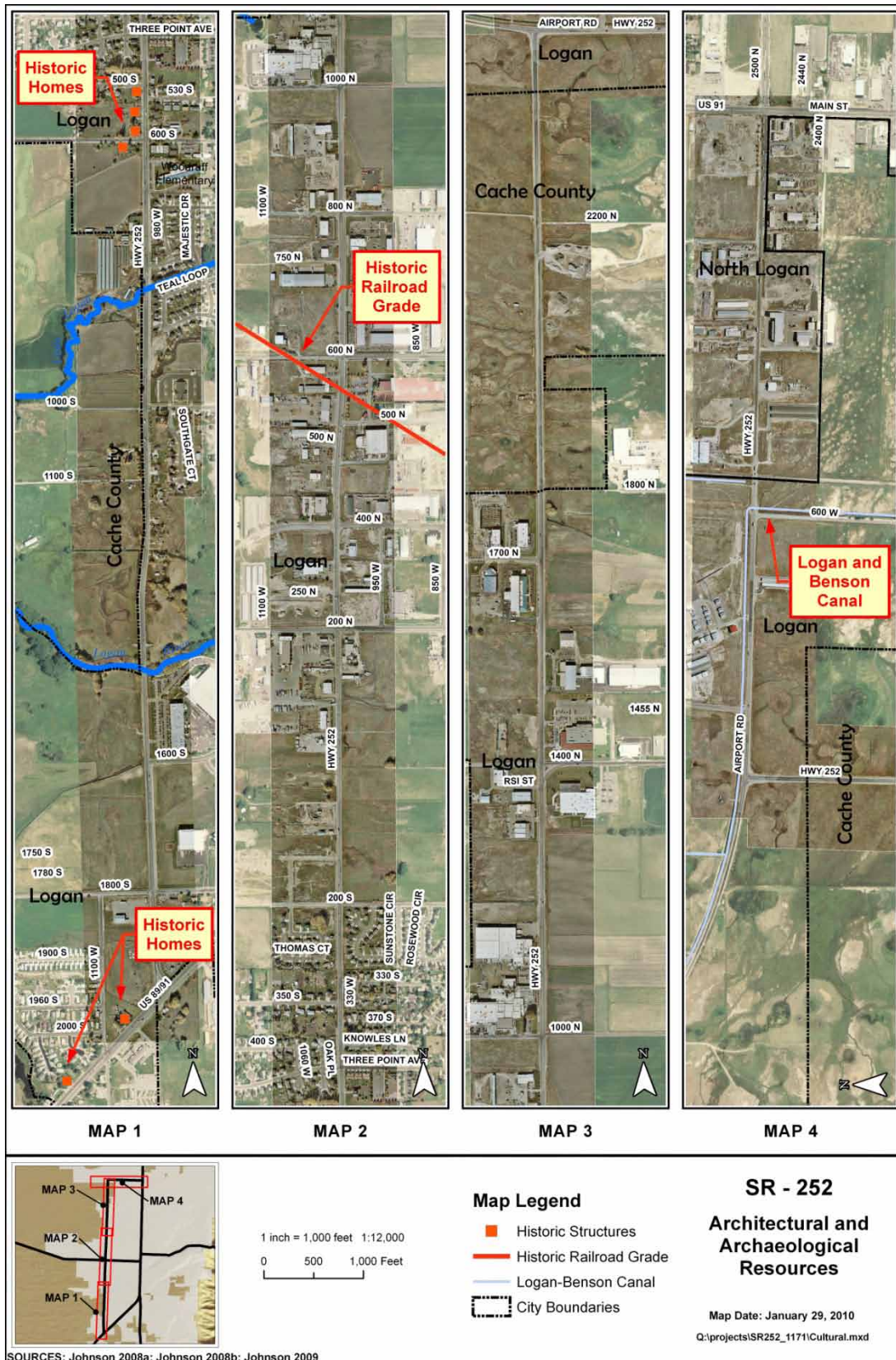
### **3.6.2.2 Proposed Action**

Three of the historic properties determined to be eligible would be adversely affected by the Proposed Action as summarized in Table 3-2. Neither of the two eligible archaeological resources would be adversely affected. The Utah State Historic Preservation Officer (SHPO) has concurred with the Determination of Eligibility and Finding of Effect (DOE-FOE) on November 25, 2009. A copy of the DOE-FOE is included in Appendix C.

## **3.6.3 Mitigation**

The DOE-FOE describes consultations that were completed with the Certified Local Governments (CLG) and Native American tribes/bands. Based on the consultations, UDOT, SHPO and the CLG have completed a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. Prior to any effect to the three historic properties, the mitigation required in the MOA will be implemented. A copy of this MOA is included in Appendix C.

If previously unidentified archaeological or architectural properties, artifacts, or human remains be discovered during project construction, the contractor will follow UDOT Standard Specification 01355, Part 1.13.



**Figure 3-4. Eligible architectural and archaeological resources near the SR-252 corridor.**



**Table 3-2. Determination of Eligibility and Finding of Effect (DOE-FOE) for historic buildings.**

ADDRESS	DATE OF CONSTRUCTION	STYLE/TYPE	SHPO RATING/NRHP ELIGIBILITY	EFFECT
200 North 1000 West	ca. 1910	Commercial (historic tannery?)	C-rated/Not Eligible	No Historic Properties Affected
145 North 1000 West	ca. 1935	Commercial (Valley Recycling)	C-rated/Not Eligible	No Historic Properties Affected
555 South 1000 West	1934	English Tudor/Period Cottage	A-rated/Eligible, Criterion C	Adverse Effect; complete property take.
575 South 1000 West	1909	Victorian, Cross-wing	C-rated/Not Eligible	No Historic Properties Affected
1005 West 600 South	1936	English Tudor/Period Cottage	A-rated/Eligible, Criterion C	Adverse Effect; complete property take.
1030 West 600 South	1918	Bungaloid Gable on Gable	B-rated/Eligible, Criterion C	No Adverse Effect; partial acquisition of 604 square feet of property, acquisition avoids primary building.
1018 West 500 South/ 525 South 1000 West	1897	Other/Cross-wing	B-rated/Eligible, Criterion C	Adverse Effect; complete property take.
750 South (655 South on the mailbox) 1000 West	1908	Other/20th Century Modern	C-rated/Not Eligible	No Historic Properties Affected
1995 S. Hwy 89/91	1953	Ranch-style	B-rated/Eligible, Criterion C	No Adverse Effect; a slope and utility easement will be required but there will be no property acquisition, the easement avoids the primary building and outbuildings.
2085 S. Hwy 89/91	1947	Minimal Traditional/Period Cottage Influence	B-rated/Eligible, Criterion C	No Historic Properties Affected

**Table 3-3. Determination of Eligibility and Finding of Effect (DOE-FOE) for archaeological resources.**

SITE NUMBER	AGE AND AFFILIATION	DESCRIPTION	NRHP ELIGIBILITY	EFFECT
42CA88	1873, Historic Period	Segment of the Utah Northern/Oregon Shortline/Union Pacific Railroad	Eligible Criteria A, C	No Adverse Effect
42CA143	1880, Historic Period	Segment of the Logan and Benson Canal	Eligible Criterion A	No Historic Properties Affected
42CA144	Unknown age, Historic Period	Wooden corral, wooden shed, and loading chute	Not eligible	No Historic Properties Affected
42CA145	Unknown age, Historic Period	Wooden corral, hay barn, loading chute, trough, and water pipe	Not eligible	No Historic Properties Affected

## **3.7 Paleontological Resources**

Popularly referred to as fossils, paleontological resources are defined as the remains, traces, or imprints of ancient organisms preserved in or on the earth's crust that provide information about the history of life on earth. Utah Code Annotated (UCA) 79-3-508 requires state agencies to take into account the effect of expending state funds or approving proposed undertakings on any specimen that is included in or eligible for inclusion in the State Paleontological Register. Consultation with the Utah Geological Survey is also required.

### **3.7.1 Existing Conditions**

A paleontological file search by the Utah Geological Survey (see Appendix C) found no recorded paleontological localities in the Project Area, though it was also stated that Lake Bonneville shoreline sand and gravel deposits (Soil types Qltg and Qlts) found in the Project Area do have potential for yielding significant vertebrate fossil localities.

### **3.7.2 Impact Assessment**

#### **3.7.2.1 *No-Build Alternative***

The No-Build Alternative would not affect paleontological resources.

#### **3.7.2.2 *Proposed Action***

The Proposed Action would have no impact on paleontological resources unless unexpected fossils are found during construction.

### **3.7.3 Mitigation**

If any fossils are found during construction an evaluation by a professional paleontologist should be conducted as described in UDOT Standard Specification 01355, Part 1.13.

## **3.8 Pedestrians and Bicyclists**

The UDOT is committed to working with metropolitan planning organizations and local governments to address the infrastructure needs of pedestrians and bicyclists. Pedestrian and bicycle facilities in Cache Valley are regionally planned through a cooperative effort by the Cache Metropolitan Planning Organization (CMPO), local cities and towns, citizen interest groups, and the general public. The two municipalities included in the Project corridor—City of Logan and City of North Logan—also have requirements for the construction of sidewalks as part of the development process.

### **3.8.1 Existing Conditions**

In the Long Range Pedestrian/Bicycle Plan (CMPO 1999), the 2500 North segment of SR-252 is identified as a planned east-west bicycle route. In the plan, 600 West (rather than 1000 West) is planned for a north-south bicycle route for the west side of the urbanized area. However, 1000

West is frequently utilized as an informal bicycle route by recreational cyclists and bicycle commuters. These uses would likely continue in the future.

For pedestrians, the majority of the corridor currently lacks sidewalks on one or both sides (see Figure 1-7). Existing and future pedestrian uses of the corridor are focused in the residential area. Of greatest concern is the segment between 600 South and 200 South where school children walk to Woodruff Elementary School along the corridor as previously discussed in Chapter 1 and Chapter 2. Pedestrian use does occur in the commercial areas, particularly between 200 North and 1400 North.

## **3.8.2 Impact Assessment**

### **3.8.2.1 No-Build Alternative**

Under the No-Build Alternative, there would not be an opportunity to improve pedestrian facilities or to improve bicycle safety along the SR-252 corridor. This would adversely affect safe pedestrian and bicycle use within the corridor.

### **3.8.2.2 Proposed Action**

Continuous sidewalks would be installed on both sides of SR-252. An identified project need is to provide 22-foot pedestrian buffering along both sides of SR-252 in the Woodruff Elementary School neighborhood between 600 South and 200 South. In all other portions of the corridor pedestrians would likely be adults or supervised children. In these areas, the planned 10-foot shoulder with curb and gutter is anticipated to provide a sufficient safety buffer for pedestrians. The paved roadway would be widened to approximately 86 feet that pedestrians would be required to cross. No defined mid-block crossings currently exist in the corridor. All crosswalks are associated with controlled intersections. The Proposed Action would maintain crosswalks only at controlled intersections. Traffic signals would be installed at the intersections of 1000 North and 1400 North. This would improve safe pedestrian access across the facility at these locations. As traffic volumes increase, new signalized intersections would also be installed at 1600 South Street (Mixed Use land use), 200 South (Residential land use), 1800 North (Commercial land use), and on 2500 North and 600 West (Commercial land use). The addition of signalized intersections in these planned areas of pedestrian use would enhance pedestrian accessibility.

Paved 10-foot shoulders along 2500 North from 600 West to US-91 would meet requirements for bicycle use and thus accommodate the designated route in the CMPO Long Range Pedestrian/Bicycle Plan. Throughout the SR-252 corridor, the planned shoulder widths, widened travel lanes, and turn lanes would also improve bicycle safety and enhance bicycle conditions for the entire corridor.

## **3.8.3 Mitigation**

The Proposed Action would have positive impacts for pedestrians and bicyclists, therefore no mitigation would be required.



## 3.9 Air Quality

Of six criteria pollutants designated by the Environmental Protection Agency (EPA), there are three that are of concern for transportation projects: carbon monoxide (CO), ozone (O<sub>3</sub>), and particulate matter (including PM<sub>10</sub> and PM<sub>2.5</sub>). Under the National Ambient Air Quality Standards (NAAQS), transportation projects must be evaluated for conformity with primary standards for these pollutants in any designated non-attainment or maintenance areas.

### 3.9.1 Existing Conditions

Cache County is currently in compliance with all NAAQS standards but will become a non-attainment area for PM<sub>2.5</sub>. Table 3-4 indicates the NAAQS primary standards for the regulated pollutants and the highest measured levels at the Logan Monitoring Station in Cache County. As shown, the monitoring station data for 24-hour PM<sub>2.5</sub> (64 µg/m<sup>3</sup>) reflects measured levels that have exceeded the NAAQS standard.

**Table 3-4. The NAAQS primary standards and measured concentrations in Logan, Utah.**

POLLUTANT	PRIMARY STANDARDS <sup>a</sup>		LOGAN MONITORING STATION <sup>b</sup>
	AVERAGING TIME	LEVEL	
Carbon Monoxide	8-hour	9 ppm	2.0 ppm <sup>c</sup>
	1-hour	35 ppm	3.4 ppm <sup>c</sup>
Ozone	8-hour (1997 standard)	0.08 ppm	0.06 ppm <sup>d</sup>
	8-hour (2008 standard)	0.075 ppm	
Particulate Matter (PM <sub>10</sub> )	24-hour	150 µg/m <sup>3</sup>	114 µg/m <sup>3</sup> <sup>e</sup>
Particulate Matter (PM <sub>2.5</sub> )	Annual (Arithmetic Mean)	15.0 µg/m <sup>3</sup>	9.6 µg/m <sup>3</sup> <sup>f</sup>
	24-hour	35 µg/m <sup>3</sup>	64 µg/m <sup>3</sup> <sup>g</sup>

<sup>a</sup> ppm = Parts per million; 114 µg/m<sup>3</sup> = microgram per cubic meter.

<sup>b</sup> Logan monitoring stations located at 125 West Center Street. Data Source: Data Archives, Utah Division of Air Quality (UDAQ 2008b).

<sup>c</sup> Data from 2004

<sup>d</sup> UDAQ Data Archives, 4<sup>th</sup> highest value as of 6/8/2006.

<sup>e</sup> Maximum 24-hour value, 2005-2007

<sup>f</sup> Annual arithmetic mean, 2007

<sup>g</sup> Three-year average of the 98<sup>th</sup> percentile of 24 hour concentrations, 2004-2006.

The EPA final rule designating areas for the 2006 PM<sub>2.5</sub> NAAQS was effective on December 14, 2009. Transportation conformity for the PM<sub>2.5</sub> NAAQS does not apply until 1 year after the effective date of non-attainment designations. Therefore, conformity for this NAAQS applies as of December 14, 2010.

The CMPO must make a conformity determination with regard to the 2006 PM<sub>2.5</sub> NAAQS for the Regional Transportation Plan and TIP within 1 year after the effective date of the initial nonattainment designation. The CMPO can make such a conformity determination anytime

during the 1-year grace period, as long as it is completed by December 14, 2010. However, if the CMPO and DOT miss the deadline, the nonattainment area would enter a conformity “lapse.”

The non-attainment designation is associated with a reduction in the PM<sub>2.5</sub> 24-hour standard from the 1997 standard of 65 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) to the 2006 standard of 35  $\mu\text{g}/\text{m}^3$ . (Specifically, the standard states that an area will meet the 24-hour standard if the 98th percentile of 24-hour PM<sub>2.5</sub> concentrations in a year, averaged over 3 years, is less than or equal to the level of the standard of 35  $\mu\text{g}/\text{m}^3$ .)

### **3.9.1.1 Ozone**

Ozone is not an air quality concern in the Logan Urbanized Area and is not expected to become a concern in the foreseeable future. Ozone is the result of a chemical reaction between oxides of nitrogen, volatile organic compounds, heat, and sunlight. Vehicle exhaust, industrial emissions, and gasoline vapors are major sources of oxides of nitrogen and volatile organic compounds. Meteorological conditions, combined with changes in the regional land use and transportation patterns, might affect ozone at a regional level. While the effects of any individual project are likely to be small and uncertain, project-level traffic volume increases likely contribute to ozone incrementally.

### **3.9.1.2 Carbon Monoxide**

While carbon monoxide (CO) is not a regional air quality concern in the Logan Urbanized Area, it can become a localized or “hot spot” problem for traffic congested areas (intersections). CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body’s organs and tissues. Health threats from CO are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability, and performance of complex tasks. A large majority (77%) of the nationwide CO emissions are from transportation sources. The largest emission contribution comes from highway motor vehicles. Other major sources of CO are wood-burning stoves, incinerators, and industrial sources.

### **3.9.1.3 Particulate Matter**

Particulate matter (PM) includes dust, dirt, soot, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as sulfur dioxide (SO<sub>2</sub>) and volatile organic compounds (VOCs) are also considered particulate matter. PM<sub>2.5</sub> consists of particles less than 2.5 micrometers in diameter, and PM<sub>10</sub> consists of particles between 2.5 and 10 micrometers in diameter.

PM<sub>2.5</sub> is becoming a concern in Cache County, as previously mentioned. The pollutant PM<sub>2.5</sub> is derived from both regional background and local sources, and is both a regional and localized air quality concern under specific circumstances. While it is true that secondary formation from PM<sub>2.5</sub> precursors is a critical component to the regional PM<sub>2.5</sub> air quality problem, directly emitted PM<sub>2.5</sub> from certain local sources has the potential to cause or contribute to elevated localized PM<sub>2.5</sub> concentrations. Specifically, intersection delays exacerbate local pollutant levels as idling vehicles generate emissions that become concentrated at specific sites. Such elevated

concentrations, which exceed applicable standards, can affect local communities and populations that the NAAQS were designed to protect.

Some improvements in PM<sub>2.5</sub> air quality are expected, for example, as a result of improved vehicle fleet efficiency and/or reduced congestion resulting from implementation of planned transportation improvements in the Regional Transportation Plan (RTP). However, anticipated growth in traffic volume could also offset some or all of these gains at some point (CMPO 2007; J. Gilbert, 2009, pers. comm.).

## **3.9.2 Impact Assessment**

### **3.9.2.1 No-Build Alternative**

The No-Build Alternative would not impact local or regional air quality.

### **3.9.2.2 Proposed Action**

#### **3.9.2.2.1 Ozone**

Cache County is in conformance with the NAAQS for Ozone. Ozone is formed at a regional level, and consequently is a complex and regional problem that is unlikely to be negatively affected by the Proposed Action.

#### **3.9.2.2.2 Carbon Monoxide**

Cache County is in conformance with the NAAQS for CO. CO is not a concern for the Proposed Action because a focus of the Project is to improve north-south traffic flow over projected No-Build conditions. A Traffic Engineering Report (UDOT 2008a) determined that the Proposed Action would include intersection improvements to accommodate long-term projected traffic growth. With complete Project construction (assumes completion of a 5-lane cross-section for the entire corridor), all major signalized intersections would serve at a minimum Level of Service (LOS) D or above during peak traffic hours (see Figure 2-4; Chapter 2). Unsignalized intersections, such as 800 North, 400 North, and 1800 South would experience delays during peak periods, which is typical of unsignalized intersections, but would not experience any decline in LOS with the Proposed Action over what would occur without Project construction.

#### **3.9.2.2.3 Particulate Matter**

Cache County is in conformance with the NAAQS for PM<sub>10</sub>. PM<sub>10</sub> concentrations are related to a combination of direct sources such as fugitive dust that come from increased vehicle miles of travel, and secondary reactions with other chemicals that form PM<sub>10</sub> in the atmosphere. It is believed that traffic volumes and corresponding LOS have less impact on PM<sub>10</sub> concentrations than the larger regional trends in the emission rates and industrial controls. Dust abatement measures implemented during construction (see Section 3.16.3) would mitigate any temporary construction impacts of PM<sub>10</sub> related to the Proposed Action.

As previously discussed, Cache County is anticipated to become a non-attainment area for PM<sub>2.5</sub> (see Section 3.9.1). While a project-level conformity determination is not required at this point in time, the Proposed Action is a regionally significant component of the RTP. Therefore, it is worth considering the potential effects of the Proposed Action on PM<sub>2.5</sub> pollution. Federal guidance for particulate matter hot spot analysis (71 FR 12468, Friday, March 10, 2006) targets

highway and transit projects that involve a substantial increase in diesel vehicle traffic. Since the EPA believes that directly emitted particles from diesel vehicles contribute disproportionately to the particle concentrations (black and elemental carbon) along roadways Hot Spot Analysis is required for *projects of air quality concern*, which for PM<sub>2.5</sub> pollution is defined as either:

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 Annual Average Daily Traffic (AADT) and 8% or more of such AADT as diesel truck traffic, or
- Expansion of an existing highway or other facility that affects a congested intersection (operated at LOS D, E, or F) that has a significant increase in the number of diesel trucks.

Following these guidelines, 8 percent of 125,000 AADT would be 10,000 AADT diesel truck traffic as a threshold for PM<sub>2.5</sub> projects of air quality concern. For the Proposed Action, traffic demand modeling (UDOT 2008a) found that the most traveled segment of SR-252 (between 200 South and 600 South) would have a total 31,900 AADT by 2030. This modeling did not specifically address volume of diesel traffic. However, if the existing percentage of heavy trucks and buses for the entire corridor (9.7 percent) was assumed to be all diesel traffic, the 2030 estimated diesel traffic would be 3,094 AADT, substantially less than 10,000 AADT.

In terms of intersections, there are existing and future unsignalized intersections along SR-252 that operate at LOS D or worse during peak periods under present conditions. Existing delays at these intersections likely contribute to localized PM<sub>2.5</sub> under present conditions. Traffic modeling determined that the Proposed Action would not negatively affect LOS at any of the unsignalized intersections with SR-252 (UDOT 2008a). In particular, the addition of turn lanes at major unsignalized intersections and the addition of signals at major intersections (especially the intersections of SR-252 at 1000 North and 1400 North) would contribute positively to reducing congestion. LOS would improve at all signalized intersections under the Proposed Action. This improved flow of traffic would help to reduce vehicle idling time over what would otherwise occur without implementation of the Proposed Action.

#### **3.9.2.2.4 Conclusion**

Based on the investigations performed and described in this section, the Proposed Action would not result in violations of the NAAQS or have negative impacts on air quality.

### **3.9.3 Mitigation**

See Section 3.17.3 regarding requirements for fugitive dust control. No other mitigation for air quality is required.

### **3.10 Noise**

Noise impacts can occur when a proposed project would increase noise levels to certain levels for sensitive noise receivers adjacent to the proposed project. The UDOT's Noise Abatement Policy (UDOT 2008b) outlines the steps necessary to determine if noise impacts would occur.

These steps include:

1. Identifying sensitive receivers,
2. Determining existing ambient noise levels,
3. Predicting future noise levels,
4. Identifying traffic noise impacts, and
5. Evaluating mitigation measures for sensitive receivers where traffic-noise impacts occur.

In addition to following these steps in this noise assessment, basic background information regarding traffic noise has been provided.

### 3.10.1 Existing Conditions

#### 3.10.1.1 *Utah Department of Transportation (UDOT) Noise Abatement Policy*

The unit used in sound measurement is the decibel (dB); the unit used for traffic noise is the dB on the A-weighted scale (dBA). The A-weighted scale most closely represents the response of the human ear to sound. Typical A-weighted sound levels are depicted in Figure 3-5. The measurement that is most commonly used to express dBA levels for traffic noise is the hourly equivalent sound level (Leq[h]), or simply, the Leq. The Leq(h) describes a noise-sensitive receiver's average exposure to all noise-producing events over a 1-hour period.

Under the Federal Noise Control Act of 1972 (USEPA 40 CFR 201–211), all Federal agencies are required to implement programs promoting environments free from noises that potentially jeopardize public health or welfare. The Federal Highway Administration (FHWA) has developed criteria for evaluating potential noise impacts for Federally funded projects and determining whether such impacts require mitigation (23 CFR Part 772). These criteria were adopted by UDOT in its Noise Abatement Policy (UDOT 2008b) and are known as the Noise Abatement Criteria (NAC). The NAC are listed in Table 3-5.

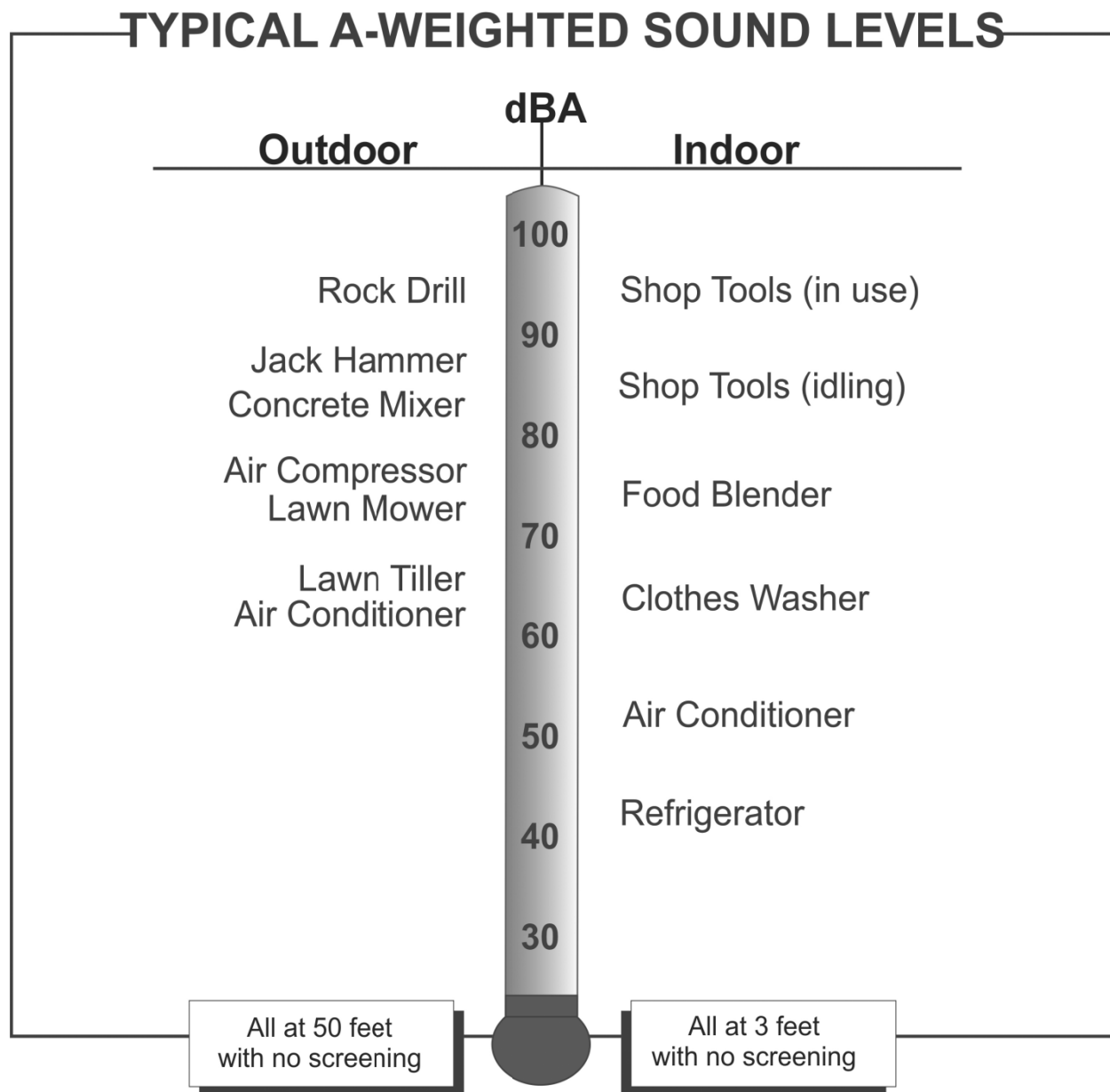
**Table 3-5. Noise abatement criteria.**

ACTIVITY CATEGORY	LEQ(h) <sup>a</sup>	DESCRIPTION OF ACTIVITY CATEGORY
A	56 dBA <sup>b</sup> (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 dBA <sup>b</sup> (exterior)	Picnic areas, fixed recreation areas, playgrounds, active grounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	71 dBA <sup>b</sup> (exterior)	Cemeteries, commercial areas, industrial areas, office buildings, and other developed lands, properties, or activities not included in Activity Categories A or B.
D	No limit	Undeveloped lands including roadside facilities and dispersed recreation areas.
E	51 dBA <sup>b</sup> (interior)	Motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. (The interior criterion only applies when there are no exterior activities to be affected by traffic noise.)

Source: UDOT 2008b.

<sup>a</sup> Hourly equivalent sound level.

<sup>b</sup> Decibels on the A-weighted scale.



**Figure 3-5. Typical A-weighted sound levels.**



### **3.10.1.2      *Noise-Sensitive Receivers***

Noise-sensitive receivers are those locations where activities could be affected by increased noise levels (e.g., residences, motels, churches, schools, parks, and libraries). Noise-sensitive receivers were identified within the Project Area, all within activity category B land uses.

Noise-sensitive receivers within activity category B land uses include residences with outside areas immediately facing the Project Area, generally in front or back yards. Three areas of potential noise-sensitive receivers were identified: the area on the western side of SR-252 between 200 South Street and 600 South Street, the area on the eastern side of SR 252 between 200 South Street and 600 South Street, and the area on the eastern side of SR-252 between 600 South Street and approximately 1000 South Street (Figures 3-6 and 3-7).

A variety of commercial and industrial land uses are present in the Project Area. These land uses are considered “sensitive land uses” under the UDOT Noise Policy, but are not considered noise-sensitive receivers as “a lowered noise level would not be a benefit” due to a lack of “frequent exterior use.”

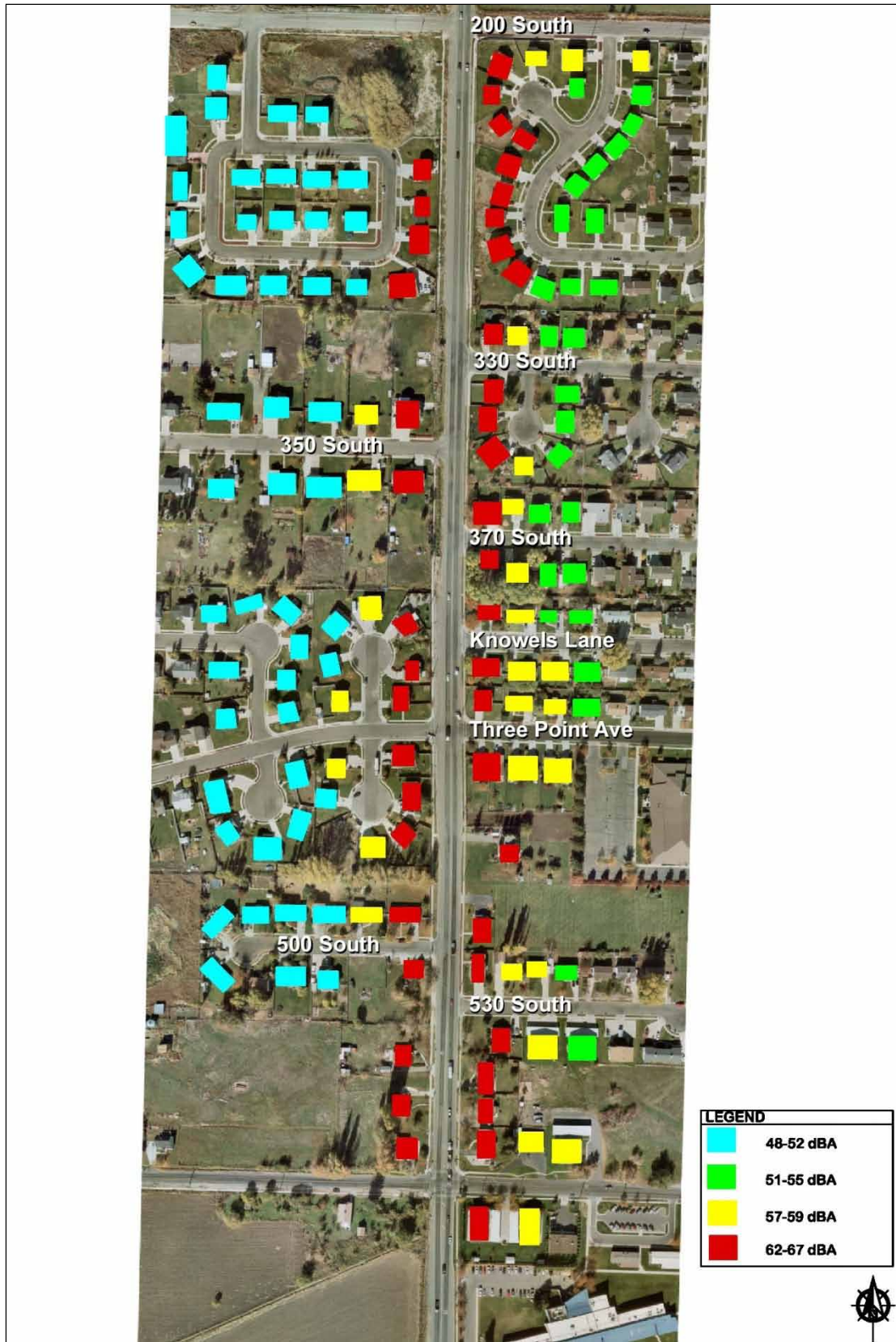
All other land uses in the Project Area are identified under activity categories C and D, and do not contain any noise-sensitive receivers. No activity category A land uses were identified in the Project Area.

### **3.10.1.3      *Existing Noise Conditions***

Because existing noise conditions are generally similar for groups of adjacent noise-sensitive receivers and because noise conditions are variable, representative samples were taken in various locations to represent the ambient noise levels for each group of noise-sensitive receivers with similar existing noise conditions. These noise levels were expressed as a decibel range that could be reasonably expected in the area, according to given noise samples. Data were modeled using the FHWA’s Traffic Noise Model (TNM) and collected using a certified Quest Technologies M-26 dosimeter. Samples were collected during peak traffic periods in summer 2008 and 2009 using a 20-minute sampling period. During the sampling period, ambient noise sources were noted and local traffic was counted. Dominant noise sources that were observed within the Project Area included passenger vehicles on existing roadways. Additional noise sources included overhead aircraft, construction noises, and residential activities such as children playing, distant lawn mowers, and barking dogs.

Figures 3-6 and 3-7 show the range of existing ambient conditions for homes in the Project Area. Commercial and industrial properties adjacent to the current roadway have noise levels between 58 and 62 dBA. This range is not out of character for these land uses given the types of activities present in the area (truck deliveries, machinery, etc.).

In general, existing noise conditions are moderately loud to loud for the residential properties within the Project Area. These loud ambient conditions primarily arise from close proximity to traffic on SR-252. High truck volumes resulting from industrial and commercial land uses to the north and south of the residential area are a significant contributor to these existing high noise levels.



**Figure 3-6.** Existing noise levels in the residential areas between 200 South Street and 600 South Street.





**Figure 3-7. Existing noise levels in the residential areas between 600 South Street and 1000 South Street.**

### 3.10.2 Noise Impact Assessment

The UDOT considers a traffic-noise impact to occur when either of the following situations is expected at a noise-sensitive land use:

1. The design noise level is greater than or equal to the UDOT NAC for each corresponding land-use category (Table 3-5).
2. The design noise level is greater than or equal to an increase of 10 dBA over the existing noise level. This impact criterion takes effect regardless of existing noise levels. Existing noise levels are defined as the noise levels (present conditions) at a noise-sensitive receiver prior to the addition of travel lanes or new construction on the adjacent transportation facility. A 10 dBA increase is perceived by most people as a doubling of noise loudness.

As per UDOT Noise Policy, noise impacts are determined for existing and future build noise levels (UDOT 08A2-1; B2(b)). Based on the Noise Policy, the No Build future condition was not analyzed. The identification of impacts is based on a comparison between existing conditions and future build conditions.

Noise levels for traffic utilizing the Project roadway under LOS C traffic conditions were modeled using version 2.5 of TNM. Level of Service C traffic conditions were used because they represent a “worst case” scenario from a noise perspective: the maximum number of vehicles traveling at the fastest speed. The FHWA TNM software predicts future noise levels based on anticipated traffic volumes by vehicle size (e.g., automobiles, light trucks, and heavy trucks), vehicle speeds, traffic-control devices, roadway geometry, and other environmental conditions. The TNM data output sheets can be found in Appendix D.

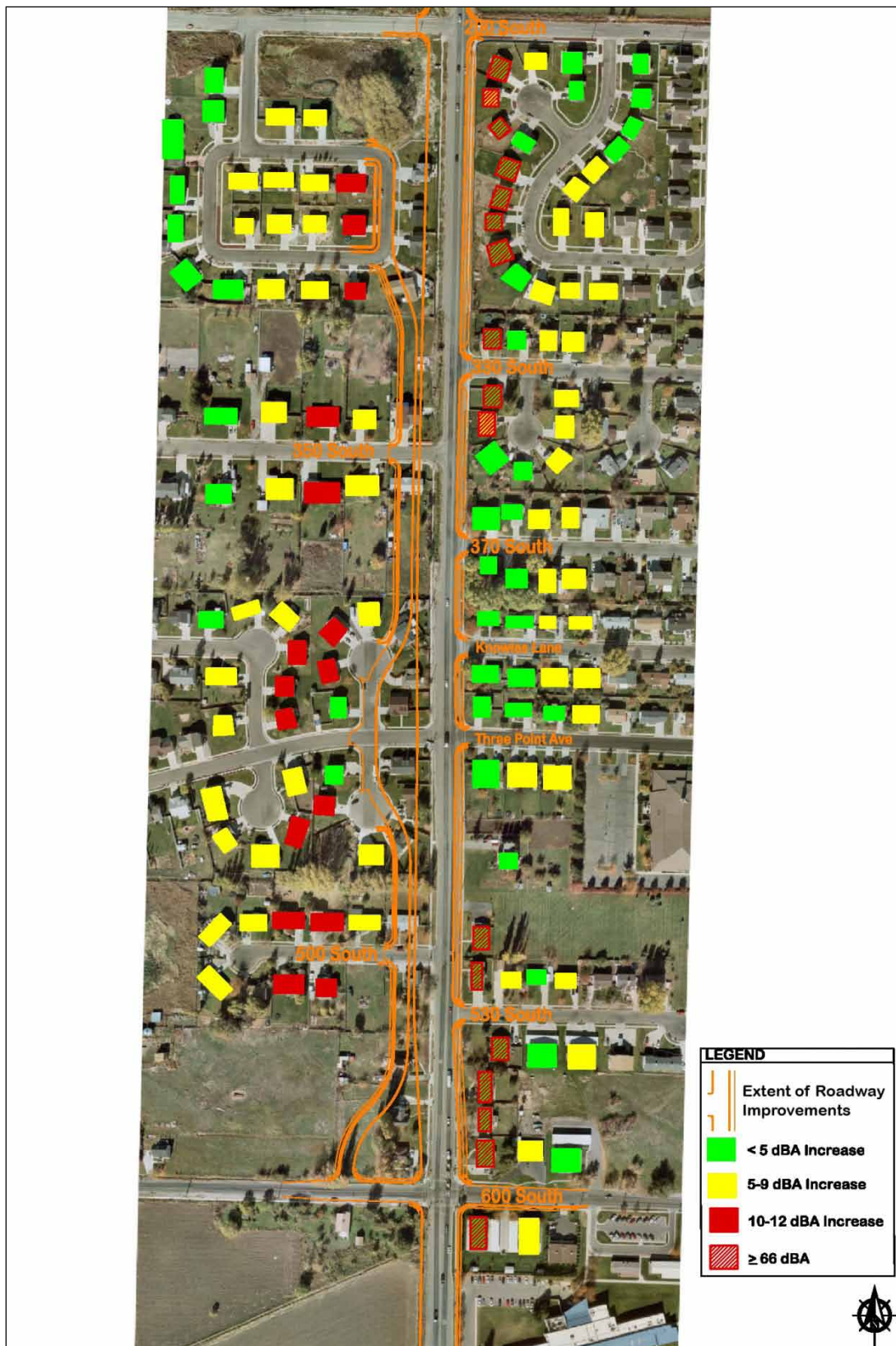
The TNM was used to model future (2030) noise levels in the residential areas. It should be noted that the TNM software estimates future traffic noise but does not estimate any other noise input such as wind, children playing, dogs barking, or lawnmowers. For this reason, some estimated future traffic noise levels may actually be quieter than existing, ambient noise levels. Table 3-6 summarizes the modeled noise increases that would occur for residences evaluated. The modeling results are also displayed in Figures 3-8 and 3-9 for individual residences.

**Table 3-6. Traffic noise increases to sensitive receivers from the Proposed Action under Level of Service (LOS) C traffic conditions.**

CHANGE IN dBA	200 SOUTH TO 600 SOUTH STREET AREA <sup>a</sup>		600 SOUTH TO 1000 SOUTH STREET AREA <sup>a</sup>
	East (Number of Receivers)	West (Number of Receivers)	East (Number of Receivers)
<5 increase	42	12	22
5–9 increase	30	12	26
10–12 increase	0	16	0
≥ 66 <sup>b</sup>	17	0	14

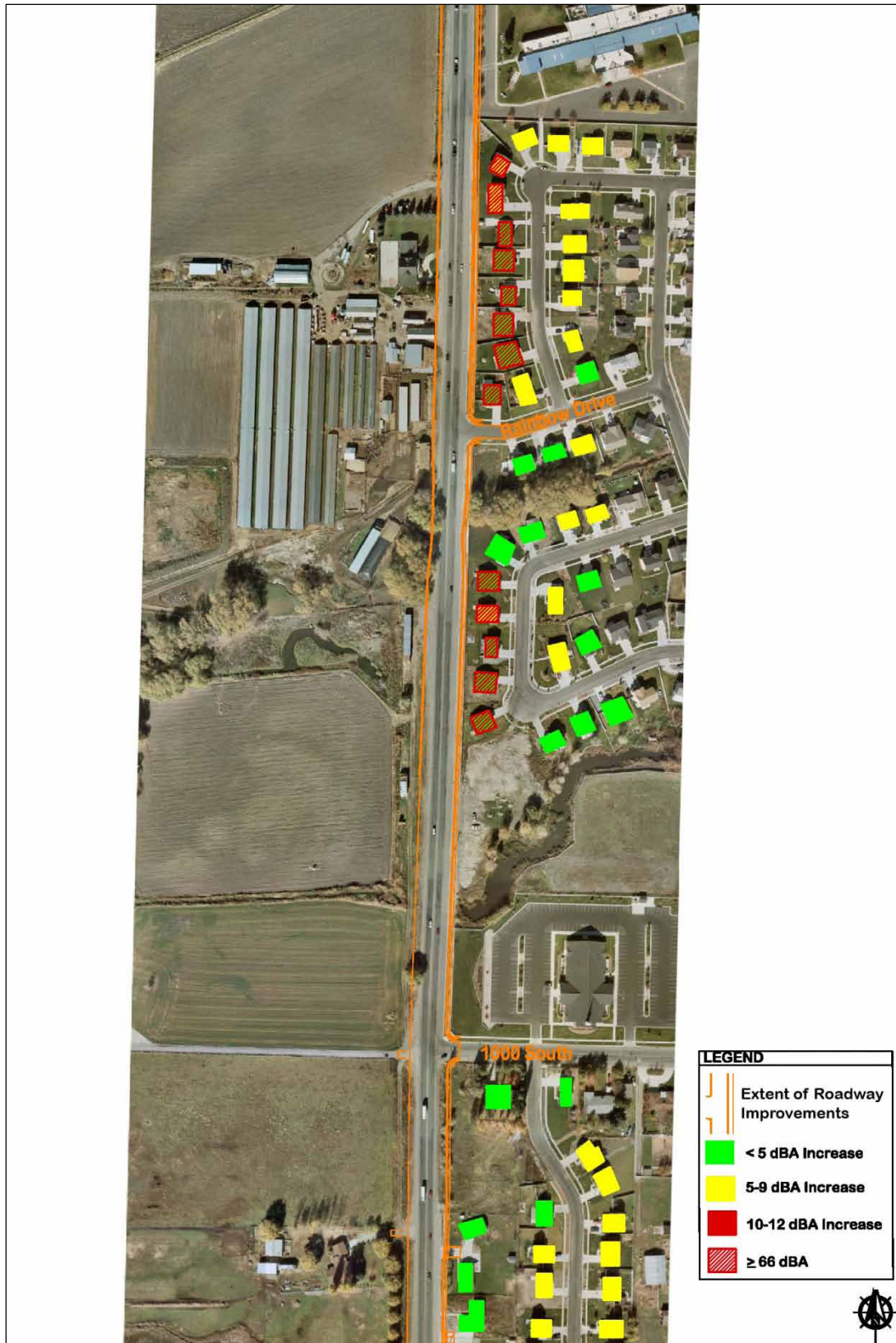
<sup>a</sup> As shown on Figures 3-8 and 3-9.

<sup>b</sup> Residences with increases ≥ 66 dBA are also represented by other increases. As such, these numbers should not be considered cumulatively.



**Figure 3-8. Potential noise increases to residences in areas between 200 South Street and 600 South Street.**





**Figure 3-9. Potential noise increases to residences in areas between 600 South Street and 1000 South Street.**



To check the accuracy of transportation noise modeling, existing conditions were modeled and compared with sampled noise data in the Project Area. These data were then entered into the TNM software to simulate existing conditions. The observed noise measurements were compared with predicted noise measurements to determine the accuracy of TNM. Results indicated that the difference between modeled and observed noise levels is within an acceptable range of accuracy and that TNM is effective in modeling noise based on traffic parameters.

Generalized daily traffic capacities for arterial-type roads were estimated using ARTPLAN software. This method is consistent with the standards and methods of the *2000 Highway Capacity Manual* (TRB 2000) for arterial facilities within in an urban area and free-flow speeds of 45 miles per hour (mph) or less. The LOS C hourly volumes were based on these capacities and estimated from the daily volume with a directional distribution of 50/50, which is consistent with the *2000 Highway Capacity Manual*.

*Truck Traffic on Utah Highways* (UDOT 2007) and existing traffic data obtained from traffic counts were used to estimate the Project roadway's projected vehicle mix. The vehicle mix used in traffic noise modeling was 90 percent automobiles, 3 percent medium trucks, and 7 percent heavy trucks.

Speeds on the Proposed Action roadway were estimated to be 30 mph through the residential area with higher speeds as currently posted on each end of the residential area (50 mph south; 40 mph north). All geographic features, including the proposed alignment, noise-sensitive receiver locations, and buildings, were located using scaled drawings and rectified aerial photography and included in the noise modeling. Topographical data included berms, dikes, and vegetation present in the Project Area.

The modeling results show that some residences are expected to be impacted by noise. These noise impacts would occur from either increases of 10 dBA or more over existing conditions or from increases above 66 dBA as noted in the NAC. Although noise levels would increase for almost all homes adjacent to the roadway, road noise would be particularly acute for residents on the western side of SR-252 directly behind the homes that would be removed for construction of a frontage road. These residences are currently screened from traffic noise by the homes that would be removed. As the homes are removed, traffic noise would travel further into the neighborhood and impact residents that would likely not be otherwise impacted. Table 3-7 presents a summary of noise impacts anticipated under LOS C traffic conditions.

**Table 3-7. Summary of traffic noise impacts for Level of Service (LOS) C traffic conditions (detailed locations provided on Figures 3-8 and 3-9).**

NOISE IMPACTS <sup>a</sup>	EAST	WEST
200 South Street–600 South Street	16 residences	17 residences
600 South Street–1000 South Street	14 residences	None

<sup>a</sup> Noise level is greater than or equal to an increase of 10 dBA over the existing noise level, or noise conditions reach 66 dBA.

Commercial areas were also modeled for noise increases under LOS C conditions. Results indicate that noise levels would increase from 58–62 dBA to 62–67 dBA. These areas are consistent with activity category C from the NAC (see Table 3-5). Noise levels at these commercial properties would not increase by 10 dBA and would not reach 71 dBA. Although noise would increase, the increases would not be sufficient to constitute an impact to the commercial and industrial properties in the Project Area.

### **3.10.3 Mitigation**

According to UDOT noise policies, specific conditions must be met before traffic noise abatement is likely to be implemented as part of the Project. For mitigation measures to be included in the Project, all requirements outlined in the UDOT Noise Abatement Policy must be met (UDOT 2008b). Measures of reasonableness and feasibility, as well as other criteria for abatement, are outlined in UDOT's Noise Abatement Policy (UDOT 2008b).

Factors that determine eligibility for noise abatement, and how these factors are met by the Project, are outlined briefly in Table 3-8.

As noted in Table 3-8, a noise wall would not provide effective abatement on the eastern side of SR-252 through the residential area. In general, effective noise abatement measures are difficult to implement in urban residential settings. Access points create “holes” that severely reduce the effectiveness of abatement measures. Analysis determined that too many access points exist on the eastern side of SR-252 for a noise wall to function.

On the western side of the roadway, the Project would block off several access points and create a new frontage road. Eight-, ten-, and twelve-foot-high noise walls were modeled to determine whether they could provide abatement for residents. Modeling indicated that only a 12-foot-high, uninterrupted noise wall from 600 South Street to 200 South Street (on the western side of the road) would be sufficient to provide abatement for 75 percent of first-row impacted residents. However, both UDOT and the City of Logan restrict installation of walls to 8 feet in urban residential settings. As a result, noise abatement is not considered reasonable or feasible.

## **3.11 Water Resources, Water Quality, and Floodplains**

Water resources include streams, rivers, lakes, reservoirs, wetlands, and groundwater. Watersheds—ground surface areas where rainfall drains into particular streams, rivers, and larger water bodies—play an important role in water quality.

Under the Federal Clean Water Act, every state must establish and maintain water quality standards to protect, restore, and preserve the quality of waters in the state. These standards consist of narrative standards for all waters, specific numerical chemical and biological standards for protecting beneficial uses, and anti-degradation provisions. The Utah Administrative Code (Rule 317) classifies surface water bodies in the state according to their beneficial uses, and most classifications have associated numeric water quality standards.

**Table 3-8. Noise abatement eligibility factors.**

FEASIBLE AND REASONABLE DETERMINATION FACTORS	EAST	WEST
Are accesses (driveways, cross streets) limited to a degree that a noise wall could function to reduce noise levels?	No. The majority of the east side of the road is dominated by driveways and cross streets, creating “holes” that would allow noise impacts to occur anyway. A noise wall in these areas would not actually block noise and would not be feasible. However, the residential areas on the east side between 200 South Street and 330 South Street and immediately north and south of Rainbow drive back onto the corridor and were evaluated for noise wall feasibility. Results indicated that only a 12-foot high noise wall would reduce noise for some residents.	Yes. The area from 200 South Street to 600 South Street limits access to a degree that a noise wall could function to reduce noise.
Would installation of a noise wall reduce noise by at least 5 dBA for 75 percent of front-row receivers?	Between 200 South Street and 330 South Street a 12-foot continuous noise wall would decrease traffic noise by 5 dBA for 70 percent of front row receivers. A continuous 12-foot noise wall immediately north of Rainbow Drive would decrease traffic noise by 5 dBA for 80 percent of front row receivers. A continuous 12-foot noise wall immediately south of Rainbow Drive would decrease traffic noise by 5 dBA for 40 percent of front row receivers. However, a 12-foot noise wall would violate UDOT (2008b) noise abatement policy and City of Logan ordinances (Logan City Land Development Code 17.15.060).	Yes. Between 200 South Street and 600 South Street a 12-foot continuous noise wall would decrease traffic noise by at least 5dBA for 100 percent of front row receivers. However, a 12-foot noise wall would violate UDOT (2008b) noise abatement policy and City of Logan ordinances (Logan City Land Development Code 17.15.060).
Would a noise wall 8 feet or less in height, per UDOT policy, provide at least a 5-dBA decrease in noise?	No. An 8-foot noise wall would not provide any receivers with a 5-dBA decrease in noise. Walls would need to be at least 12-feet high to provide a 5-dBA noise decrease..	No. An 8-foot noise wall would not provide any receivers with a 5-dBA decrease in noise. Walls would need to be at least 12-feet high to provide a 5-dBA noise decrease.
Would a noise wall be consistent with land use and zoning per City of Logan Land Development Code?	No. City of Logan ordinances only allow walls up to 8 feet high (Logan City Land Development Code 17.15.060)	No. City of Logan ordinances only allow walls up to 8 feet high (Logan City Land Development Code 17.15.060)
Would a noise wall cost \$30,000 or less per noise receiver according to UDOT noise policy?	Costs were not evaluated; no forms of abatement were considered feasible because UDOT policy and Logan City Ordinances prohibit use of walls greater than 8 feet high.	Costs were not evaluated; no forms of abatement were considered feasible because UDOT policy and Logan City Ordinances prohibit use of walls greater than 8 feet high.

Floodplains are an important part of the watershed and have a major role in maintaining water quality. Floodplains typically provide valuable habitat for certain wildlife species. A properly functioning floodplain also plays a major role in protecting adjacent areas from damage during floods.

### **3.11.1 Surface Water**

#### **3.11.1.1 Surface Water Existing Conditions**

The SR-252 corridor involves two streams, the Logan River and the Little Logan River, as well as irrigation ditches or canals from six separate irrigation companies. The Logan River is the major water body, with the Little Logan River a smaller stream. The Logan River has a drainage area of 524 square miles. The 100 year discharge was recently estimated to be 2300 cubic feet per second (cfs), lower than the original bridge design estimate of 3,500 cfs from the 1970s (Civil Science 2008). There are six irrigation companies that maintain canals within the proposed corridor. Moreover, these irrigation canals also convey stormwater.

#### **3.11.1.2 Surface Water Impact Assessments**

##### **3.11.1.2.1 No-Build Alternative**

The No-Build Alternative would not affect water resources in the Project Area. There would be no improvements to the drainage system under the No-Build Alternative. Thus, the poor drainage conditions and ability to convey surface water across the corridor would remain and likely continue to deteriorate.

##### **3.11.1.2.2 Proposed Action**

The Proposed Action improvements would increase impervious surface area by approximately 32.64 acres from 51.24 acres to 83.98 acres, which would likely generate greater stormwater volume and reduce infiltration in the Project Area. The additional volume would increase peak flows related to storm events, potentially creating additional erosion. However, velocities are not expected to rise as the capacity of receiving channels would be sufficient to accommodate increased flows. As shown in Table 3-9, the estimated increase in runoff related to the increase in stormwater varies within the Project Area is based on the 10-year storm (pers comm. Civil Science 2010). The current design includes placing stormwater from the road into the existing combined storm flow, spring flow, and irrigation flow system, primarily ditches and canals. The design also includes adding a pipe to the headwall of the crossing to discharge stormwater to the Little Logan. Additional flow from the proposed storm drain discharging into streams or canals could have an effect on channel erosion. Unless the outlets are adequately protected, erosion associated with pipe discharge could create a scour pool in the stream. Adequate outlet protection would mitigate such impacts from the stormwater discharge.

Curb and gutter would direct flow to the existing outfalls and catch basins and meet design standards described in the Northern Cache Valley Storm Water Design Standards (City of Logan 2009). The existing system would be improved with additional conveyances (culverts) for stormwater and cross drainage.

**Table 3-9. Estimates of flow from road runoff.<sup>a</sup>**

LOCATION	FLOW FROM ROAD (CUBIC FEET PER SECOND)	TOTAL-PIPE DISCHARGE (CUBIC FEET PER SECOND)	OUTFALL VELOCITIES (FEET PER SECOND)
36" piped system from 1800 south to Logan River	8.2 from 1000 West	48.2	6.8
Little Logan River	5.4 from 1000 West	5.4	3.9
Cow Pasture (600 south to north of 200 North)	7.4 from 1000 West	Approximately 28	3.9
2500 North- 36" pipe into the Benson Canal	14.3 from 2500 North	29.0	5.8

<sup>a</sup> Discharge and velocity estimates are from Comer K., 2010, pers. comm.

The Logan River Bridge widening improvements have no foreseeable impacts to the Logan River or the floodplain. The bridge widening would not change the size of the bridge opening for water to pass through. Moreover, the bridge would span the banks with supports placed on pilings with no physical constriction within the channel (Civil Science 2009). No impacts to the Little Logan River from roadway widening are expected because the existing box culvert spans the limits of proposed roadway improvement.

#### **3.11.1.2.3 Surface Water Mitigation**

All outlets to existing streams or canals will be designed with attenuation to dampen discharge velocities as necessary to limit erosion and sedimentation. Flows into the Benson Canal will be coordinated with the canal company to provide appropriate discharge conditions.

In order to eliminate scour in the streambeds of receiving waters, channel protection will be developed as necessary during final design.

### **3.11.2 Water Quality**

#### **3.11.2.1 Water Quality Existing Conditions**

The section of Logan River and Little Logan River within the Project Area are classified as 2B (recreational use and aesthetics, infrequent primary contact), 3A (cold water fisheries), 3D (waterfowl and water-oriented wildlife) and 4 (agricultural use). The Logan River and Little Logan River are not currently on the State of Utah 303(d) list of impaired waters.

#### **3.11.2.2 Water Quality Impact Assessments**

##### **3.11.2.2.1 No-Build Alternative**

The No-Build Alternative would maintain existing conditions for discharge into receiving waters. However, the No-Build Alternative does not provide the opportunity to implement Best Management Practices (BMPs) at sensitive discharge locations.



#### **3.11.2.2.2 Proposed Action**

The Logan River and Little Logan River are considered unimpaired water bodies that meet water quality standards for their designated beneficial uses. However, the increase in impervious surface area translates to additional stormwater that may transport pollutants, primarily sediment, Total Dissolved Solids (TDS) (often from road salt during winter), oils and floatable petroleum products, and metals to receiving water bodies including the Logan River and the Little Logan River. Other water quality impacts are associated with runoff from the road mixing with flows from the various irrigation canals and from other areas of Logan. Stormwater runoff from 2500 North creates nearly half the calculated flow in the Benson Canal from a 10 year storm. This proportion may create water quality impacts depending on the type and amount of various pollutants that are available for stormwater to transport. Approximately 5.7 cfs of the discharge from 2500 North occurs under existing conditions; the new impervious road surface would add approximately 8.6 cfs, which would be about 30 percent of the discharge total. The remaining three discharges described in Table 3-9 are a smaller proportion of flow in the receiving water body, meaning the potential impacts are smaller.

#### **3.11.2.2.3 Mitigation**

Using BMPs from UDOT Manual of Instruction for Drainage and UDOT Standard Construction Specifications will help reduce the impacts of the Proposed Action to water quality. Any treatment will follow the City of Logan stormwater design standards as permanent BMPs (City of Logan 2009). Under these standards, treatment will address total suspended sediment and petroleum products.

### **3.11.3 Floodplains**

The National Flood Insurance Rate Map for the City of Logan (City of Logan 1984) characterizes the floodplain on the east side of 1000 West as Zone A2, an area inundated by the 100- year flood, with no established base flood elevation. However, the Federal Emergency Management Agency is currently updating their original flood insurance study (Civil Science 2008). No other 100-year floodplain occurs within the SR-252 corridor.

#### **3.11.3.1 Existing Conditions**

Floodplains in the Project Area have been mapped for purposes of local community participation in the National Flood Insurance Program. The SR-252 corridor has one perpendicular floodplain crossing of approximately 1,530 feet at the Logan River.

#### **3.11.3.2 Floodplain Impact Analysis**

##### **3.11.3.1.1 No-Build Alternative**

The No-Build Alternative would not affect floodplains in the Project Area. The only designated floodplain is associated with the Logan River and there would be no change in the floodplain crossing.

##### **3.11.3.1.2 Proposed Action**

The Proposed Action would not increase the extent of existing road corridor transverse crossing of the Logan River 100-year floodplain. The bridge crossing at the Logan River would be extended approximately 30 feet both upstream and downstream to accommodate the 5-lane

cross-section. The crossing would be perpendicular to the floodplain (transverse crossing), thus having little effect on functional floodplain values. The hydraulic analysis shows that there would be no change in existing flow conditions nor would the structure create flow restriction. The bridge would be designed with sufficient freeboard (the distance between the water surface and the bottom of the bridge deck) so as not to increase the 100-year flood elevation upstream. The Proposed Action would result in additional fill of approximately 1.2 acres associated with road embankment. This is a limited encroachment restricted to the existing corridor. The floodplains both east and west of the road corridor are broad and extensive and the small amount of additional fill adjacent to the existing corridor is not anticipated to adversely affect the beneficial values of flood attenuation and desynchronization of the local floodplain. The potential floodplain encroachments have been coordinated with the City of Logan Floodplain Coordinator (see Appendix C).

#### **3.11.4 Mitigation**

No mitigation is required.

### **3.12 Wetlands**

Special aquatic sites, including wetlands, are regulated by the Federal government under Executive Order 11990 and through Section 404 of the Clean Water Act. Special aquatic sites are defined as “geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values” (40 CFR 230.3). Wetlands are defined as “those areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3(B)). The U.S. Army Corps of Engineers (Corps), through Section 404 of the Clean Water Act guidelines and permitting process, has jurisdiction to regulate activities that would impact waters of the United States and their associated wetlands.

#### **3.12.1 Existing Conditions**

A jurisdictional wetland delineation report was completed and submitted to the Corps in March 2008 (Civil Science 2008). A wetland delineation addendum was subsequently completed and submitted to the Corps in December of 2009 (BIO-WEST, Inc. 2009). These documents located and characterized existing jurisdictional wetlands adjacent to the SR-252 corridor. The Corps issued a preliminary jurisdictional determination letter approving the document findings on January 8, 2010 (see Appendix C). The jurisdictional wetlands are shown on the map sheets in Appendix A.

The wetlands located adjacent to the Corridor are classified as wet meadows, emergent marshes, and wetland ditches. Wetland hydrology is supported by springs, groundwater, and surface flooding. The Logan River bottomlands and Cutler Reservoir are located outside the Project area to the west of the SR-252 corridor. These large wetland complexes are visible on aerial photographs and U.S. Geological Survey maps. Wetlands adjacent to the SR-252 Corridor are connected to these larger western bottomland wetlands via culverts, groundwater, and surface

flow. Although wetlands are located along various portions of the SR-252 corridor, they are most prevalent in the vicinity of the Logan River, areas of high groundwater between 200 South and 200 North, and the pasturelands between approximately 1800 North and 2500 North (see map sheets in Appendix A). The wetlands have been historically modified through ditching, plowing, and grazing.

### **3.12.2 Impact Assessment**

#### **3.12.2.1 No-Build Alternative**

Under the No-Build Alternative, no fill would be placed in the identified wetlands or waters of the United States. Thus, there would be no impact to wetlands.

#### **3.12.2.2 Proposed Action**

The Proposed Action design has avoided and minimized wetland impacts where possible. Avoidance and minimization efforts include steepening embankment slopes, narrowing roadway design within more rural areas of the corridor, and shifting the roadway to avoid wetlands. Potential wetland impacts were considered in the evaluation of Project alternatives as part of the alternatives screening process (see Section 2.3.2 in Chapter 2). The initial 110-foot cross section was partially dismissed due, in part, to greater wetland impacts compared to the 99-foot cross section selected for the Proposed Action design. Permanent wetland impacts associated with the Proposed Action were reduced by 0.94 acres by narrowing the cross section. The current design avoids and minimizes jurisdictional wetland impacts to the greatest extent practicable while still accomplishing the primary Project goals.

Wetland impacts that are associated with the Proposed Action can be separated into permanent and temporary wetland impact types. Permanent wetland impacts are permanent fill areas including the roadway surface, side slopes, sidewalks, and associated permanent infrastructure. Permanent wetland impacts associated with the highway expansion consist of the permanent filling of 6.13 acres of jurisdictional wetlands as illustrated in Appendix A. These permanent impacts require wetland mitigation to offset the permanent loss of wetland function and value.

Temporary wetland impacts are defined as areas used for equipment access and equipment storage. Temporary wetland impacts are not permanently filled and are restored after construction is complete in order to restore wetland function and value. Temporary wetland impacts associated with the Proposed Action consist of 2.43 acres of jurisdictional wetlands. The 2.66 acres of temporary wetland impacts can be further classified as 1.26 acres of temporary equipment storage and lay down area and 1.17 acres of temporary equipment access areas.

The temporary equipment storage locations within existing wetlands would occur on both sides of the Logan River area. The widening of the existing bridge would require additional area for heavy construction equipment to construct this structure. Large cranes and other related equipment would access the property on both sides of the existing bridge and work within the temporary easement areas as noted on the map sheets in Appendix A. Due to the existing soil conditions near the bridge it would be necessary to add additional fill to provide for timed

settlement of the embankment. This additional fill (occurring within the noted temporary easement) would be removed upon completion of the settlement period, but would require temporary lay down of fill materials and equipment access for subsequent removal activities. Upon construction of the bridge and associated embankments these areas would be restored to pre-existing wetland conditions.

Temporary equipment access within existing wetlands would occur at various locations along the corridor where embankment slopes are being constructed. This area allows space for construction equipment and personnel to temporarily access and construct the slopes. Upon construction of the slopes these areas would be restored to pre-existing wetland conditions.

### **3.12.3 Mitigation**

In order to fill jurisdictional wetlands as part of the Project, a Department of the Army (DA) permit application must be prepared and submitted to the Corps for approval prior to construction. The Proposed Action must comply with the Federal policy of “no net loss” of wetlands. This policy states that wetlands lost due to any action must be replaced or mitigated. The permit application must contain a wetland mitigation plan detailing proposed mitigation efforts and how they will offset lost functions and values due to wetland impacts associated with the Proposed Action. A temporary wetland impact restoration plan will be developed as part of the Corps permitting requirements. Final design plans will limit the extent of temporary impacts to wetlands. Prior to construction all boundaries between construction areas and adjacent wetlands will be visibly marked or bounded with environmental fencing so that no unintended disturbance occurs. After obtaining the federal permit, the wetland mitigation site would be constructed by UDOT according to the approved mitigation plan.

UDOT has explored several potential mitigation sites for the Proposed Action. The preferred mitigation project consists of the creation of appropriate wetland habitat within the Bear River watershed. The specific wetland mitigation area currently proposed is located on land owned by PacifiCorp adjacent to the Bear River near Trenton, Utah. The land is held in a conservation easement by the Bridgerland Audubon Society Chapter of northern Utah. The wetland creation area would create wet meadow, emergent marsh, and cottonwood riparian areas within areas that are currently weedy uplands. The created wetland would be of appropriate size and habitat variation to offset the loss of functions and values associated with the Proposed Action wetland impacts. The complete wetland mitigation plan with detailed construction drawings will be submitted and approved by the Corps prior to project related wetland impacts.

### **3.13 Threatened and Endangered Species**

The UDOT’s responsibility with regard to the federal Endangered Species Program (7 USC 136; 16 USC 1531 *et seq.* (1973)) is to ensure that all transportation-related projects minimize impacts to listed threatened, endangered, and candidate species and their habitats.

### 3.13.1 Existing Conditions

A review of the U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species for Cache County, Utah (November 2007) identified two threatened species and one candidate species for listing that possibly occur within Cache County. Threatened species include the Canada lynx (*Lynx canadensis*), and Maguire primrose (*Primula maguirei*). The candidate species is the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Both the Maguire primrose and Canada lynx require specialized habitat that is not found in the lower elevation valley ecosystem of Cache Valley. However, the riparian forest of cottonwood and willows of the Logan River may provide some potential habitat for the yellow-billed cuckoo.

Yellow-billed cuckoos are restricted to riparian areas in the western United States that are commonly comprised of a mixture of mature cottonwood and willow. Nests are generally constructed in dense willow understories in riparian forests. Yellow-billed cuckoos most often occupy habitat patches greater than 100 acres in size with a width of greater than 650 feet. At the immediate SR-252 bridge crossing over the Logan River, the riparian corridor has few cottonwood/willows, with more extensive riparian forests established approximately 125 feet upstream (east) and approximately 400 feet downstream (west). These riparian cottonwood/willow forests then extend for greater than 1,000 feet in either direction. Although the width of these riparian forests (approximately 200-300 feet) is much less than the identified optimal habitat width for yellow-billed cuckoos, these extensive stretches are potential habitat. However, no nesting or use has ever been recorded in the area. The last recorded observation of yellow-billed cuckoos within the general area occurred in 1946 in the Logan River riparian corridor, approximately 5 miles upstream of the Project Area (Utah Division of Wildlife, Conservation Data Center).

### 3.13.2 Impact Assessment

#### 3.13.2.1 No-Build Alternative

The No-Build Alternative would not change conditions at the Logan River and no potential habitat for yellow-billed cuckoo would be affected. No other threatened or endangered species or habitat occurs within the vicinity of the SR-252 corridor.

#### 3.13.2.2 Proposed Action

The Proposed Action would enlarge the size of the existing bridge over the Logan River to accommodate a five lane section and may require the removal of a few mature willow trees. The area of potential disturbance is not considered suitable yellow-billed cuckoo habitat. Potentially suitable habitat, upstream and downstream, would not be affected. As such, the project would have no effect the yellow-billed cuckoo.

The UDOT's wildlife/wetlands biologist (Appendix C) made a "No Effect" determination for Threatened and Endangered Species and migratory birds. In accordance with UDOT's Memorandum of Understanding with the USFWS, concurrence from USFWS is not required for "No Effect" determinations.



### **3.13.3 Mitigation**

The Proposed Action would not affect any threatened or endangered species; therefore, no mitigation is required.

## **3.14 Wildlife and Fisheries**

Transportation projects can cause impacts to various types of small wildlife, fish species, big game species, avian species, state-listed sensitive species, and their habitats. Impacts to wildlife can either be through direct mortality or indirectly through loss of habitat or disturbance during critical times of their life cycles (e.g. breeding, nesting, severe winter stress). Loss of habitat or disturbance can result in additional stress on a population or lost productivity that affects the overall population status of a local species.

### **3.14.1 Existing Conditions**

Wildlife and fisheries resources in the Project Area were investigated using the Utah Division of Wildlife Resources database, UDOT's Traffic and Safety data, the Wildlife Connectivity database, and site investigations by a wildlife biologist.

It was determined that no important or critical big game habitat has been designated within 1 mile of SR-252. The Project corridor does not cross any identified big game movement corridor. Mule deer do occur within the agricultural fields and likely use the Logan River floodplain for cover and localized movement.

It was determined that other sensitive species potentially within the Project Area would be raptors, primarily red-tailed hawks (*Buteo jamaicensis*) and Swainson's hawks (*B. swainsoni*). No raptor stick nests have been observed within or adjacent to the SR-252 ROW. The Logan River is used by wintering bald eagles for fishing; however, no day roosts or perching has been identified in the immediate vicinity of the SR-252 crossing of the river.

The Logan River in the vicinity of the SR-252 crossing is known to provide habitat for brown trout (*Salmo trutta*), carp (*Cyprinus carpio*), and mottled sculpin (*Cottus bairdii*). These are all species that are common throughout the state and the Logan River. No sensitive or rare species occur within the Project Area. Some limited habitat for brown trout spawning occurs approximately 1,000 feet upstream of the SR-252 crossing. The shoreline adjacent to this reach of the river is privately owned and does not provide access for fishing. The Little Logan River does not support a sport fishery or sensitive fish species within the reach crossed by SR-252.

### **3.14.2 Impact Assessment**

#### **3.14.2.1 No-Build Alternative**

Because the No-Build Alternative would not cause any land disturbance, there would be no direct or indirect effect to wildlife or fisheries in the Project Area.

### **3.14.2.2 Proposed Action**

The Proposed Action could temporarily displace deer using the Logan River floodplain/riparian area during construction; however, ample habitat exists upstream and downstream, and there would be no short-term or long-term effect to big game. The widened bridge would continue to provide opportunity for wildlife to cross under the roadway. Therefore, no impact to big game populations would occur as a result of Project implementation.

Any raptor use of the general area is indicative of acclimation to some human activity (e.g. car and large truck traffic, human activity at a distance), and it is unlikely that road and bridge construction would affect general use of the available habitat by raptors. As such, it was concluded that no effect is expected to these or any other migratory species.

Brown trout are abundant within the lower segments of the Logan River (below the First Dam). Bridge construction activities would require a Stream Alteration Permit. As part of the approved permit there would be provisions to minimize any short-term construction impact to the river and riparian zone. This would include all necessary BMPs for sedimentation control. The permit would also include any necessary design provisions to ensure long-term bank stability.

Findings from these investigations are also summarized in the memorandum from UDOT's wildlife/wetlands biologist (Appendix C). It was determined that, with these measures in place, the Proposed Action would have no effect to important wildlife habitat, big game migration routes, wildlife connectivity, state sensitive species, or fish passage.

### **3.14.3 Mitigation**

A required Stream Alteration Permit will specify necessary practices for protecting the Logan River and riparian zone. In addition, a Utah Pollution Discharge Elimination System stormwater construction permit and Storm Water Pollution Prevention Plan will be required. No other mitigation for wildlife or fisheries resources will be required.

## **3.15 Invasive Species**

Under the Federal Noxious Weed Act of 1974, noxious weeds are defined as those plants that are "...of foreign origin, are new to or not widely prevalent in the United States, and can directly or indirectly injure crops, or other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation, or the fish or wildlife resources of the United States or the public health." The State of Utah defines noxious weeds as "...any plant that is especially injurious to public health, crops, livestock, land, or other property" (UCA Title 4-17-2).

### **3.15.1 Existing Conditions**

Noxious weeds are limited within the corridor. There are scattered patches of Canada thistle (*Cirsium arvense*), but no large stands. Noxious weeds generally are found along the corridor in areas of high-use and frequent disturbance.

### **3.15.2 Impact Assessment**

Actions that remove established ground vegetation and promote establishment of invasive species, particularly noxious weeds could impact natural vegetation communities, including agricultural pastures and croplands by changing community composition, stability of the community, or agricultural productivity.

#### **3.15.2.1 No-Build Alternative**

The No-Build Alternative does not provide for improvements to the road corridor. There would be no additional exposed or disturbed slopes and no additional opportunities for establishment of noxious weeds.

#### **3.15.2.2 Proposed Action**

Because road construction would involve ground disturbance, the Proposed Action would potentially result in the spread of noxious weeds within the Project Area. Small populations of noxious weeds currently exist along the corridor. Additionally construction activities could provide a long-term vector for noxious weed invasion by exposing large areas of soil and transporting various kinds of materials that might contain weed seeds. Spread of noxious weeds could affect production in agricultural fields.

### **3.15.3 Mitigation**

The potential adverse effects of noxious weed invasion would be mitigated through appropriate construction techniques. UDOT Construction Special Provision 02924S, Invasive Weed Control, will be followed in order to prevent the introduction of invasive weed species into or out of the job site. All temporarily disturbed areas that will not be paved will be revegetated at the end of construction.

## **3.16 Hazardous Materials and Hazardous Waste Sites**

During the State Environmental Study process, UDOT investigates potential hazardous materials or hazardous waste contamination on properties that may be acquired or temporarily disturbed during Project construction. Concerns are related to:

- The spread of existing soil or groundwater contamination through road construction activities;
- Potential for increased construction costs;
- Potential for construction delays;
- Construction worker health and safety; and/or
- Short-term and long-term liability associated with acquiring environmentally distressed properties.

### 3.16.1 Existing Conditions

An environmental records search of Federal, State and local databases and a site inspection was conducted within and adjacent to the Project Area to identify any recognized environmental conditions associated with the present and historical land uses. The search area included the corridor plus 0.25-1.0 miles in either direction, depending on the database searched. A recognized environmental condition is defined in the American Society for Testing and Materials (ASTM) Practice E 1527-00 as follows:

The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions termed *de minimis* are not recognized environmental conditions.

This assessment identified 34 properties within the search area with recognized environmental conditions associated with them. Thirteen of these sites occur adjacent to the SR-252 corridor. The conditions associated with these 13 sites include:

- Nine Underground Storage Tank (UST) sites, three of which are closed.
- Five leaking Underground Storage Tank (LUST) sites: four of which are closed, the other site in the process of closure.
- Two open Above Ground Storage Tank (AST) sites.
- Five Resource Conservation and Recovery Act small quantity hazardous waste generator (RCRA-SQG) sites, four of which are active.
- One Toxic Release Inventory Site (TRIS), identifying a site that stores toxic chemicals.
- One site that reported releasing hazardous materials (SPILLS) to the Utah Division of Environmental Response and Remediation (DERR). Small spill reported in 1993.
- One site that has been removed from the inventory of Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites.

The location of the sites, their specific conditions and current status are presented as Table 3-10.

**Table 3-10. Potential hazardous waste and material sites adjacent to SR-252.**

SITE	LOCATION	ENVIRONMENTAL CONCERN <sup>a</sup>	CURRENT DISPOSITION	POTENTIAL CONFLICT
Flying J Co.	1905 South US-89/91	LUST  UST	Process of Closure  Active	Limited to only excavations greater than 4 feet, which is the depth to groundwater.  No right-of-way (ROW) or access reconstruction at tanks or utilities.
ICON	1550 S. 1000 W. Street	RCRA Small Quantity	Active	Limited ROW acquisition. No Conflict with storage areas.
LW's Truck Stop	10200 W. 200 N. Street	AST UST	Active Active	No ROW or access reconstruction at tanks or utilities.
Cache County Road Dept.	525 N. 1000 W. Street	LUST UST	Closed Active	Limited ROW acquisition. No Conflict with tanks.
Cache Valley Electric	875 N. 1000 W. Street	UST LUST	Closed Closed	No Conflict. No Conflict.
Coca Cola	975 W. 800 N. Street	LUST UST	Closed Active	Limited ROW acquisition. No Conflict with tanks.
Gossner Foods, Inc.	1051 N. 1000 W. Street	UST TRIS	Closed Active	No Conflict. Limited ROW acquisition. No Conflict with TRI activities.
Herff Jones, Inc.	940 W. 1400 N. Street	LUST UST RCRA Small Quantity	Closed Active Active	Limited ROW acquisition. No Conflict with tanks or storage areas.
Young Electric Sign Company	1651 N. 1000 W. Street	RCRA Small Quantity	Active	Limited ROW acquisition. No Conflict with storage areas.
S & S Sports, Inc.	350 W. 2500 N. Street	RCRA Small Quantity	Active	Limited ROW acquisition. No Conflict with storage areas.
Thurston Construction Co.	225 W. 2500 N. Street	AST	Active	Limited ROW acquisition. No Conflict with tanks.
Airport Best Stop	2495 N. Main Street	UST	Active	No ROW or access reconstruction at tanks or utilities.
Logan MFG, Co.	2503 N. Main Street	CERCLIS RCRA UST Reported Spill	Removed Closed Closed 1993	Site cleaned. No Conflict. No Conflict. Containers no longer present.

### 3.16.2 Impact Assessment

While the sites identified in Section 3.16.1 do have recognized environmental conditions, there is currently no indication that any contamination related to hazardous material is present at levels that would impact the proposed construction operation or pose a risk to human health or the environment. All sites in the search area have been closed, have received site remediation, have had hazardous material removed, or are in compliance with regulations. As presented in Table 3-10, the Proposed Action is not expected to involve any disturbance of material storage areas. ROW acquisition and reconstruction would not affect underground facilities such as storage



tanks nor utility lines from such tanks. The identified petroleum leak at the Flying J Gas Station (1905 South US-89/91) has been remediated and site closure is pending. Some residual petroleum may still occur within soil or groundwater. However exposure for road construction is not expected to be a risk.

### **3.16.2.1      *No-Build Alternative***

The No-Build Alternative would not have any effects related to the identified sites in the Project Area.

### **3.16.2.2      *Proposed Action***

Because there are no sites along the corridor that have active known hazardous waste or material problems all The identified sites would not be disturbed during construction of the Proposed Action, therefore no impacts are expected from the Proposed Action related to hazardous material or hazardous waste for any of these sites.

### **3.16.3          Mitigation**

No mitigation is required. As described in Section 3.16.8, should construction workers encounter previously undocumented soil contamination or other hazardous waste during construction, the contractor must follow UDOT Standard Specification 01355, Part 1.6. Under this specification, construction activity will cease until the hazard is evaluated and appropriate protection measures are implemented.

## **3.17          Construction Impacts**

Some of the environmental resources previously described would have temporary construction-related impacts. The nature and timing of construction impacts along various segments of the corridor would depend upon construction methods, project phasing, and the nature of the area affected. Short-term construction impacts would be associated with travel delays, increased construction equipment traffic, noise, and visual disturbance. Other resource concerns could be related to air quality, cultural resources, water quality, wetlands, or hazardous waste. The construction contractor would be responsible for all environmental clearances as described in Section 01355 of UDOT's Standard Specifications.

### **3.17.1          Noise**

Construction noise impacts are considered direct but temporary and would be minimized by adherence to Part 1.11 of the UDOT Standard Specification 01355. Noise-related impacts cannot be mitigated fully, but can be minimized by relocating construction staging areas during different project phases, shutting down idling equipment whenever practical, and limiting the loudest construction activities to times of the day when residents are less likely to be disturbed.

### **3.17.2          Visual**

Visual quality for sensitive view locations, such as residential areas, may be temporarily affected by construction equipment and materials, stockpiles, and ground disturbance. If it becomes

necessary to continue any construction phases during the nighttime hours, lighting may temporarily inconvenience some residences. As construction phases are completed, these temporary visual impacts would be removed and staging areas would be restored to prior condition.

### **3.17.3 Air Quality**

Construction impacts to air quality would be short-term and may include fugitive dust and localized emissions from construction equipment and vehicle idling from temporarily delayed traffic. Fugitive dust is composed of relatively large particles that settle out quickly, thus localizing the effect to air quality. Proper construction techniques, such as utilizing water, mulching, and/or applying surfactants on areas with high fugitive dust potential, would minimize dust emissions. Dust-control measures, per UDOT Standard Specification 01572, will be implemented. Mitigation measures will include developing and implementing a dust control plan for all construction activities.

### **3.17.4 Cultural or Paleontological Resource Discoveries**

Previously unknown historical, archaeological, or paleontological objects, features, sites, or human remains could be discovered during construction. If such resources are found, the contractor is required to follow procedures described in Part 1.13 of the UDOT Standard Specification 01355.

### **3.17.5 Water Resources and Water Quality**

The State of Utah will require a stream alteration permit because work would occur within 30 feet of the stream bank for the Logan River and Little Logan River (see UDOT Standard Specification 01355, Part 1.8). Some general permit conditions include use of BMPs, notification if construction causes an increase in turbidity of 10 NTUs (nephelometric turbidity units), and requirements for riprap.

Because Project construction would disturb more than 1 acre of land, the Project will also require a Utah Pollution Discharge Elimination System (UPDES) Storm Water General Permit for Construction Activities. The permitting process includes developing a Stormwater Pollution Prevention Plan (SWPPP). Application of BMPs identified in the SWPPP will minimize impacts to surface water. Examples of effective BMPs include, but are not limited to, silt fence, drop inlet and curb barriers, sediment traps, and stabilized construction entrances. Additional erosion control BMPs such as project phasing and covering exposed slopes are also effective at reducing erosion and therefore sediment.

### **3.17.6 Wetlands**

During construction, some temporary wetland impacts are necessary for construction staging and access. Preliminary design indicates that a total of approximately 2.66 acres would be temporarily disturbed. Storage and equipment areas would require approximately 1.26 acres, primarily at the Logan River where structural bridge material would be stored and construction

equipment, such as cranes and pile drivers would operate. The remaining 1.4 acres of temporary disturbance is associated with equipment access to construct fill slopes. Where practical, equipment work pads can be placed on the ground to minimize disturbance. Upon completion of construction, these temporary wetland impact areas would be restored to their original condition. Permanent wetland impacts due to roadway fill require a permit under Section 404 of the Federal Clean Water Act and must be mitigated.

### **3.17.7 Invasive Species**

Since the Proposed Action involves earthwork, grading, and some landscaping (park strip areas), there is potential to introduce or spread invasive weed species. UDOT Special Provision 02924S, “Invasive Weed Control” specifies BMPs for reducing this potential and will be included in the contract documents.

### **3.17.8 Hazardous Materials**

There is some potential for accidental fuel spills during construction of this or any similar roadway construction project. Some petroleum fuels would likely be stored in construction staging areas. The required SWPPP for the construction phase of the Proposed Action would address secondary containment and spill response for fuels and any other chemicals used during construction. A separate concern is that construction workers could encounter previously undocumented soil contamination or other hazardous waste during construction. In such an event, Part 1.6 of the UDOT Standard Specification 01355 requires that construction activity cease until the hazard is evaluated and appropriate protection measures are implemented.

### **3.17.9 Traffic**

No long-term construction detours are anticipated. It is likely that short-term temporary detours may be required at specific locations to install specific features such as storm drains. Emergency service personnel would be aware of all detours and be able to plan temporary alternate routes to avoid service impediments. Accesses to businesses and residents would be maintained with the brief exception for site specific construction, which could delay access. Construction activities would have a short-term impact on accessibility of sidewalks for pedestrian use and for bicycle use in the corridor. Impediments to non-motorized travel would be limited in length along the corridor and in duration.

## **3.18 Mitigation Summary**

Most of the impacts associated with the Proposed Action would be minimized by adherence to UDOT’s *Standard Specifications for Road and Bridge Construction*, *Temporary Erosion and Sediment Control Standards*, and *Temporary Water Pollution Control Standards*. Additionally, UDOT’s policy of compensation for ROW acquisition would alleviate landowner concern. Additional mitigation measures are presented below by resource component.

### **3.18.1 Land Use / Property Acquisition / Relocations**

All property acquisition will be mitigated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 USC 4601 *et seq.*, as amended 1989).

### **3.18.2 Historic, Archaeological and Paleontological Resources**

Implement the MOA signed by UDOT, SHPO and the CLG pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. This MOA includes stipulations for the unavoidable adverse effect to three historic properties.

If previously unidentified archaeological or architectural properties, artifacts, or human remains be discovered during Project construction, the contractor will follow UDOT Standard Specification 01355, Part 1.13.

### **3.18.3 Air Quality**

Dust-control measures, per UDOT Standard Specification 01572, will be implemented. Mitigation measures will include developing and implementing a dust control plan, compliant with the Utah Fugitive Emissions and Fugitive Dust Rule (R307-309) for all construction activities.

### **3.18.4 Wetlands**

Obtain an individual Section 404 Permit from the Corps in accordance with 33 CFR 330.5(b)(3) and 40 CFR 230.7. No construction activities in designated wetlands will be conducted until the permit is approved.

Develop the wetland mitigation plan required by the Section 404 Permit in coordination with the Corps.

Develop the temporary wetland impact restoration plan as part of the 404 Permit.

During final design, limit the extent of temporary impacts to wetlands to every extent practical.

All boundaries between construction areas and adjacent wetlands will be visibly marked or bounded with environmental fencing so that no unintended disturbance occurs.

### **3.18.5 Surface Water**

All outlets to existing streams or canals will be designed with attenuation to dampen discharge velocities as necessary to limit erosion and sedimentation. Flows into the Benson Canal will be coordinated with the canal company to provide appropriate discharge conditions.

In order to eliminate scour in the streambeds of receiving waters, channel protection will be developed as necessary during final design.

### **3.18.6 Water Quality**

Using BMPs from UDOT Manual of Instruction for Drainage and UDOT Standard Construction Specifications will help reduce the limited impacts to water quality. Any treatment will follow the City of Logan stormwater design standards as permanent BMPs (City of Logan 2009). Under these standards, treatment will address total suspended sediment and petroleum products.

### **3.18.7 Invasive Species**

UDOT Special Provision 02924S, “Invasive Weed Control” specifies BMPs for reducing this potential and will be included in the contract documents.

All temporarily disturbed areas that will not be paved will be revegetated at the end of construction.

### **3.18.8 Hazardous Materials**

Should construction workers encounter previously undocumented soil contamination or other hazardous waste during construction, the contractor must follow UDOT Standard Specification 01355. Under this specification, construction activity will cease until the hazard is evaluated and appropriate protection measures are implemented.

## **3.19 Permit Requirements**

The following permits will be required prior to the initiation of construction.

### **3.19.1 Utah Pollution Discharge Elimination System (UPDES) Storm Water General Permit for Construction Activities**

The UPDES permit is required because construction would disturb more than 1 acre of land. The permit will be obtained by preparing a SWPPP and Notice of Intent for the Utah State Department of Environmental Quality, Division of Water Quality.

### **3.19.2 Utah Division of Water Rights Stream Alteration Permit**

Because the Proposed Action would require crossing of the Logan River and widening of the existing Logan River Bridge, a Stream Alteration Permit will be required from the Utah Department of Natural Resources, Division of Water Rights. The permit will be required if there is any alteration to the channel bed or banks, or disturbance of the riparian zone. Any permit will be subject to approval by the Corps. Because the existing culvert at the Little Logan River crossing extends beyond the limits of the proposed roadway improvements, there would be no changes to the structure, the river channel or the riparian zone.



### **3.19.3      Clean Water Act Section 404 Permit**

An individual permit will be required for activities involving the discharge of dredge or fill material into “Waters of the United States”, including wetlands. The Section 404 Permit is administered by the Corps. The permit must be approved before any construction activities result in discharge of dredge or fill material into wetlands.

**CHAPTER 4**  
**CONSULTATION**  
**AND COORDINATION**



## **4.0 CONSULTATION AND COORDINATION**

The State Route 252 (SR-252)/1000 West Corridor Improvement Project (Project) team solicited public, agency, and stakeholder participation throughout the process of preparing this State Environmental Study (Study). This chapter provides an overview of consultation and coordination activities. Appendix C provides copies of all pertinent agency correspondence and Appendix B provides a detailed public involvement report.

### **4.1 Agency Consultation**

In April 2008 an agency scoping letter was sent to all Federal and State agencies that might have an interest in the Project outcome or regulatory authority over potentially affected resources. The following agencies were contacted:

- U.S. Army Corps of Engineers
- Federal Emergency Management Agency
- Federal Highway Administration
- U.S. Fish and Wildlife Service
- Natural Resources Conservation Service
- Utah Governor's Office of Economic Development
- Utah Governor's Office Resource Development Coordinating Committee
- Utah Division of Air Quality
- Utah Division of Drinking Water
- Utah Division of Environmental Response and Remediation
- Utah Division of Homeland Security
- Utah Division of Parks and Recreation
- Utah Division of Solid and Hazardous Waste
- Utah Division of State History
- Utah Division of Water Quality
- Utah Division of Water Resources
- Utah Division of Water Rights
- Utah Division of Wildlife Resources
- Cache Metropolitan Planning Organization
- Cache County
- City of Logan
- City of North Logan

The following agencies replied with comments (copies of letters received are included in Appendix C):

- Utah Geological Survey
- Natural Resources Conservation Service
- Utah Division of Environmental Response and Remediation
- Utah Division of Drinking Water

- Utah Governor's Office Resource Development Coordinating Committee
- Federal Emergency Management Agency

Agencies with regulatory authority over relevant issues of concern for the Project were the U.S. Army Corps of Engineers (Corps) and the Utah State Historic Preservation Officer (SHPO). Consultations with these agencies were ongoing throughout the Study process. Consultations with the Corps regarding wetlands impacts, Section 404 permitting, and mitigation have been ongoing throughout the Project. A jurisdictional wetland determination was received on January 8, 2010. A Clean Water Act Section 404 Wetland Permit application has been initiated and has included pre-application meetings with the Corps.

As discussed in Section 3.6 of this document, coordination with SHPO led to concurrence with the Determination of Eligibility and Finding of Effect (DOE-FOE) on November 25, 2009. A copy of the DOE-FOE is included in Appendix C. The DOE-FOE also describes consultations that were completed with the Certified Local Governments (CLG) and Native American tribes/bands. Based on the consultations, Utah Department of Transportation (UDOT), SHPO and the CLG are completing a Memorandum of Agreement (MOA) pursuant to 36 CFR 800.6(b)(iv) to mitigate any adverse effect to historic properties. Prior to any effect to the three historic properties, the mitigation required in the MOA will be implemented.

## 4.2 Technical Advisory Committee

The Project team worked closely with the Cache Metropolitan Planning Organization, City of Logan, City of North Logan, and other local entities throughout the Project to address pertinent issues. A Technical Advisory Committee (TAC) consisting of 28 representatives was formed to obtain input at key stages of the Study process. Appendix B includes a description of TAC meetings, input, and outcomes. The TAC met five times during the Project:

- April 2008 to introduce the Project and gather initial input for consideration in the design.
- September 2008 to introduce and gather input for refinement of the conceptual design.
- April 2009 to discuss possible acquisition of homes on west side of SR-252 to achieve pedestrian buffering in the Woodruff Elementary School neighborhood area.
- June 2009 TAC reached strong consensus for the design in the neighborhood area.
- August 2009 TAC provided strong support for the overall design for the Proposed Action.

## 4.3 Public Involvement

The public involvement activities for the Project were designed and implemented to engage all stakeholders and the general public in the design process. The primary goal was to develop a clear understanding of the corridor deficiencies, adjacent land use constraints, and specific public concerns that could possibly be included in alternative designs. Through an iterative process,



there were multiple opportunities for the public, stakeholders, and public officials to provide input on the development of Project design alternatives. Appendix B provides detailed descriptions of all public involvement activities. These included:

- Neighborhood Council Representative Meetings
- Woodruff Elementary School PTA Meetings
- Ad-Hoc Safety Committee Meetings
- Public Meetings/Open Houses
- Special Residential Area Meetings

#### **4.3.1 Neighborhood Council Representative Meetings**

Three neighborhood council areas are adjacent to the corridor; Ellis, Bridger and Woodruff. Of these, the Bridger and Woodruff areas have the most significant potential impact from the Project. A representative of each Neighborhood Council was invited to participate on the TAC and specific coordination / input meetings were held with representatives at Project introduction (April 2008) and at the initial concept design stage (October 2008). The Woodruff and Bridger representatives were also invited to participate in specific residential/neighborhood area planning sessions to develop and reach consensus on the proposed design for the residential area.

#### **4.3.2 Woodruff Elementary School PTA**

Input from the PTA included three meetings with members of the Woodruff Elementary School PTA and other meeting attendees such as the Woodruff Elementary School principal, school board members and school superintendent to present Project status and gather input. Pedestrian safety in the school area was the major concern. The group discussed concerns about the existing narrow pedestrian features, including lack of park strip and narrow sidewalks, pedestrian crossing at Three Point Avenue and 600 South Street. Potential solutions to these issues were discussed.

#### **4.3.3 Public Meetings/Open Houses**

Three public open houses were designed to provide opportunity for participation by interested community residents and the general public to learn about the Project, identify concerns and comment on conceptual and proposed designs.

- May 2008 – This initial meeting sought to identify potential issues and to obtain public input regarding the Project needs (93 attendees).
- October 2008 – The goal of this meeting was to present and gather input on proposed designs and modifications following previous public input (85 attendees).
- July 2009 – Present and gather comments on the Proposed Action (more than 76 attendees).

#### 4.3.4 Special Residential Area Meetings

The most challenging area of the corridor for which to develop a successful and publicly supported design solution was the residential area. So important were the interests of property owners in this area in enhanced pedestrian and aesthetic features that homeowners from the west side of SR-252 between 200 South and 600 South Street approached the Logan City Council to solicit their support in requesting that UDOT purchase their properties to allow for a wider cross section in this area that would support such enhancements. Based on this interest and request from the City of Logan, the design team planned and conducted a series of specific coordination, communication and planning/design work sessions with neighborhood residents. These efforts included:

- March 2009 – Ad-hoc safety committee representatives meeting to learn more about the interests of potentially affected homeowners on the west side of SR-252 in the Woodruff Elementary School neighborhood (3 attendees).
- May 2009 – West side residential area meeting with 17 homeowners to determine their level of interest and support in UDOT acquiring their properties to design a wider cross section (20 attendees).
- May 2009 – Residential Area Property Owner’s Meeting to present wider cross section alternatives for consideration by neighborhood area residents between 200 South and 800 South Street (34 attendees).
- May 2009 – Citizen-based Design Committee Meeting a work session with representatives of the design team, UDOT, City of Logan, Woodruff School PTA, Woodruff Neighborhood Council, neighborhood area residents and other interested citizens to develop design concepts for the pedestrian buffer area between 200 South and 600 South Street (13 attendees).
- June 2009 – A second meeting with the 17 homeowners to discuss the preliminary proposed design for a 124-foot cross section with frontage road that would require UDOT acquisition of their homes and properties and their relocation (20 attendees).
- June 2009 – Individual homeowner visits for all potentially affected 17 homeowners who could not attend meetings to ensure they were fully informed of the proposed design and impacts to their property.
- At the conclusion of these efforts, very strong consensus was reached by participating neighborhood residents and affected homeowners for the proposed design through the neighborhood section from 200 South to 800 South Street, including the 124-foot cross section with frontage road between 200 South and 600 South Street.

#### **4.4 Written Comments and Responses on the Draft Environmental Study and From the Public Hearing**

One written comment on the draft State Environmental Study was received from the Utah Division of Water Rights. No other comments were received from Federal, State, or local government agencies. Sixteen written comments were received during and as a result of the public hearing held on March 24, 2010. Fifty-four people attended the public hearing. The attendance roster is presented at the end of Appendix B. Three commentors provided verbal comments transcribed by the court recorder present at the hearing. All 16 written comments and the verbal transcriptions are included in their entirety below, along with responses to comments.

The majority of comments received were related to design considerations at specific locations particularly in relation to property access, fencing, drainage and irrigation. Other commentors were concerned with potential congestion at 200 South and 1000 West. Two commentors requested installation of a noise wall between 600 S and 200 S to mitigate residential noise impacts. The one agency comment was from Utah Division of Water Rights and expressed concern that the bridge over the Logan River was designed too large and the width could be reduced to minimize effect on the river corridor.

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## **WRITTEN COMMENTS AND RESPONSES**

## COMMENT LETTER 1



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Fred Baugh Jr Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☐ Resident ☒ Bypass ☒ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1

Concerned with drainage on property on E side of 10th W. between  
2nd S + 1st S. No existing drainage since County raised  
10th west years ago causing wetland problem

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)



## RESPONSE TO COMMENT LETTER 1

**Comment 1-1:** Concerned with drainage on property on E side of 1000 W between 2<sup>nd</sup> S and 1<sup>st</sup> S. No existing drainage since County raised 10<sup>th</sup> West years ago causing wetland problem.

**Response:** Roadway improvements to the existing drainage system north of 200 South Street are planned for the Project. These improvements are intended to maintain the historical drainage flows in the area, while also providing improved function by lowering the pipe(s) flowline elevation to an appropriate level. It is anticipated that these improvements, as part of the roadway project, will improve the overall function of the area drainage and irrigation conveyance.

## COMMENT LETTER 2



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name FRED BAUGH III Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☐ Resident ☒ Bypass ☒ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

- #1 ' ASSURE THERE IS DRAINAGE FROM EAST TO WEST  
SIDE OF 1000 WEST NORTH OF 200 SO.
- #2 ' NEED TO ASSURE PAVEMENT TO FIELDS EAST OF  
1000 WEST (SEE ABOVE) IS WIDE ENOUGH TO  
ALLOW CATTLE TRUCKS AND TRACTORS ADEQUATE  
MANUEVERING ROOM.
- #3 ' ASSURE FENCES ARE REPLACED, EQUAL TO, OR  
BETTER; AND GATES / ACCESS PROVIDED

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSES TO COMMENT LETTER 2

**Comment 2-1:** Assure there is drainage from east to west side of 1000 West north of 200 So.

**Response:** Please see the response to Comment 1-1.

**Comment 2-2:** Assure access to fields east of 1000 West (see above) is wide enough to allow cattle trucks and tractors adequate maneuvering room.

**Response:** Each existing access has been reviewed for function and use in relation to operation and safety. The wider roadway shoulder, improved roadway edge conditions, and reconstructed driveway surfacing will provide additional function in the use of these accesses. The design is also intended to maintain the original width of reconstructed or relocated accesses in this area.

**Comment 2-3:** Assure fences are replaced equal to or better: and gates/access provided.

**Response:** All fences removed or impacted as part of the roadway improvements are planned for replacement with the UDOT standard right-of-way (ROW) fences or a fence type that is equivalent to the existing fence. Existing fences needing replacement that do not meet the UDOT standards (wire and chain link) will be addressed as part of specific ROW agreements, with individual owners being compensated to replace their own unique fence type.

## COMMENT LETTER 3



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Kaelynn Beecher Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☐ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1 | There needs to be drainage from east to west  
(100 So + 10th W) to prevent road erosion from  
water run-off.

#2 | Need light on 200 So. New subdivisions going  
in west of 200 So. 175 homes. Will cause  
huge traffic at 200 So - needing a light.

#3 | Access to field needs to be capable of accommodating a  
cattle truck & the entrance should be located outside corral area.

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

Fence - needs to protect cattle.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

### RESPONSES TO COMMENT LETTER 3

**Comment 3-1:** There needs to be drainage from east to west (100 So & 10<sup>th</sup> W) to prevent road erosion from water run-off.

**Response:** Please see the response to Comment 1-1.

**Comment 3-2:** Need light on 200 So. New subdivisions going in west of 200 So, 175 homes. Will cause huge traffic at 200 So. – needing a light.

**Response:** At present, the current 200 South Street intersection does not meet required warrants for installation of a traffic signal. Future installation of a possible traffic signal at 200 South Street is dependent upon compliance with conditions of the SR-252 corridor agreement and this particular intersection meeting traffic signal warrants according to State law and policy.

**Comment 3-3:** Access to field needs to be capable of accommodating a cattle truck & the entrance should be located outside corral area. Fence needs to protect cattle.

**Response:** Please see the response to Comment 2-2. Also, specific to this property, the reconstructed access will remain at the current gate location, which is outside of the corral area.



## COMMENT LETTER 4



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Paul Beecher Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☒ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

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#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

#1 Logan City is in the process of approving a high density subdivisions at 80' + 96' issues that will have to access 10th West from 2nd South. It is estimated that that will add 400 to 500 additional cars at that intersection per day. When asked 'how they plan on handling the extra traffic?' Logan City says "that's UDOT's problem!" - Just so you know!

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## RESPONSE TO COMMENT LETTER 4

**Comment 4-1:** Logan City is in the process of approving 2 high density subdivisions of 80+ & 96 homes that will have to access 10<sup>th</sup> West from 2<sup>nd</sup> South. It is estimated that that will add 400 to 500 additional cars at that intersection per day. When asked “how they plan on handling the extra traffic?” Logan City says “that’s UDOT’s problem.” Just so you know!

**Response:** Please see the response to Comment 3-2.

## COMMENT LETTER 5



Public Comment Form #4  
Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

1. Contact Information

Name Ray Blumell Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

2. Design Plan: Please provide your comments regarding the planned design as presented.

#1 The Frontage Road is due to open directly across the street from my house. This is a serious concern to me in that if a car speeds through the road they may end up significantly damaging my house and possibly causing harm to people inside. I think a little foresight in this matter could go a long way in reducing any pain, suffering, or legal action. Many Thanks

3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

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Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 5

**Comment 5-1:** The frontage road is due to open directly across the street from my house. This is a serious concern to me in that if a car speeds through the road they may end up significantly damaging my house and possibly causing harm to people inside. I think a little foresight in this matter could go a long way in reducing any pain, suffering, or legal action.

**Response:** While the urban nature of this low-speed (25 mph) intersection would normally not require additional traffic control signage, this project will investigate incorporation of T-intersection signage behind the sidewalk on the southerly side of 600 South Street along with the inclusion of privacy-style, chain-link fencing to better alert drivers to the termination of the frontage road onto 600 South Street. Additionally, the planned roadway surfacing improvements and curb and gutter and sidewalk installed on the south side of 600 South Street is expected to provide an added measure of physical separation of vehicles and the subject property.

## COMMENT LETTER 6



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Jeddy Bodrero Phone [REDACTED]

Address [REDACTED] Email [REDACTED]

Your corridor use: ☐ Resident ☐ Bypass ☐ Business ☐ Employment ☒ Other (describe) Agriculture

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1

The design plan is good for my use and to help traffic flow.

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

#2

The concern I have is with access from my property located on the N.W. corner of 2200 N-1000 W. The current S.E corner access must stay as is to make it work to move cattle to and from this field in the fall of the year. If needs be, we would trade the north entrance for the south entrance.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 6

**Comment 6-1:** The design plan is good for my use and to help traffic flow.

**Response:** No response required.

**Comment 6-2:** The concern I have is with access from my property located on the N.W. corner of 2200 N – 1000 W. The current S.E. corner access must stay as is to make it work to move cattle to and from this field in the fall of the year. If needs be, we would trade the north entrance for the south entrance.

**Response:** Improvements to this portion of SR-252 are not intended to be included with the currently funded roadway improvements. Therefore, additional review of this particular access and coordination with the land owner would be performed when this particular portion of the corridor is funded for improvements. At that time, the wider roadway shoulder, improved roadway edge conditions, and reconstructed driveway surfacing will provide additional function in the use of this access. In addition, UDOT policy requires relocation of the existing southerly parcel access to a new location along 2500 North Street to meet access spacing requirements and the function and safety needs of the overall Project.

## COMMENT LETTER 7a



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Paul DuRoe Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

I Am Very Excited For The Improvements To Be Completed.  
Thanks

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

#1

I would like to see the Frontage Road first, so the  
Residents do not have to drive through the construction  
zone. However I would not want to see traffic to  
be diverted on to the Frontage Road. That would be to  
much traffic.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)



## RESPONSE TO COMMENT LETTER 7a

**Comment 7-1:** I would like to see the frontage road first. So the residents do not have to drive through the construction zone. However I would not want 10 West traffic to be diverted on to the frontage road. That would be too much traffic.

**Response:** The phasing of construction activities will be based upon a schedule provided by the contractor. It is anticipated that active coordination among the contractor, UDOT and City of Logan will result in an appropriate schedule for construction.

## COMMENT LETTER 7b



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name John D. Lee Phone [REDACTED]

Address [REDACTED] mail [REDACTED]

Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

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#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

- #2 Consider additional buffer space along 10th St. W.
- #3 200 South - Wetland Center  
- Don't want to lose riparian buffer zone  
(Wetland)  
or expand wetland

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## RESPONSE TO COMMENT LETTER 7b

**Comment 7-2:** Consider additional buffer space along 10<sup>th</sup> W @ 200 South – Wetland Corner.

**Response:** Review of this parcel for landscape improvements will be coordinated with the City of Logan during the final design process.

**Comment 7-3:** Don't want to leave dirt area between buffer & wetland or expand wetland.

**Response:** It is anticipated that the area west of the roadway ROW will not be modified, as the intent of the Project is to avoid disturbance of existing riparian and wetland features wherever practicable.

## COMMENT LETTER 8



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321  
(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name ZIGER GESSEL Phone [REDACTED]  
Address [REDACTED] mail [REDACTED]  
Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

- #1 WE FEEL IT WOULD BE VERY APPROPRIATE TO PUT A WALL  
ALONG THE WEST SIDE BETWEEN 10<sup>TH</sup> WEST & THE FRONTAGE ROAD  
THE EAST SIDE OF THE SOUTH WALMART HAS A GOOD  
EXAMPLE OF WHAT WE SHOULD DO FOR A WALL.  
#2 PUT AN EIGHT FOOT WALL ON A FOUR FOOT BEAM AND IT WILL BE AN EFFECTIVE SOUND  
200 SOUTH MUST HAVE A TRAFFIC LIGHT - HUNDREDS MORE HOMES ARE WALL  
BEING BUILT THAT WILL USE THAT INTERSECTION.  
#3 600 SOUTH SHOULD HAVE A LEFT TURN LIGHT INSTALLED

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

- #1 IRIGATION CANNOT BE INTERRUPTED IN SUMMER SEASONS  
#5 NOISE - LOGAN CITY NEEDS TO HAVE ORDINANCE THAT  
RESTRICTS TRUCK ENGINE BRAKES IN CITY LIMITS.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 8

**Comment 8-1:** We feel it would be very appropriate to put a wall along the west side between 10<sup>th</sup> West & the frontage road. The east side of the south walmart has a good example of what we should do for a wall. Put an eight foot wall on a four foot berm, and it will be an effective sound wall.

**Response:** The UDOT has developed a noise policy that addresses noise abatement for transportation projects. The UDOT Noise Policy is consistent with *Federal Regulation 23 CFR 772 - Procedures for Abatement of Highway Traffic Noise and Construction Noise* and *Utah Code 72-6-111 & 112*.

The UDOT Noise Policy states that “...proposed barriers on non-limited access roadways in urban areas will not exceed 8 feet in height.” State Road 252 within the Project Area is considered a non-limited access roadway in an urban area. Although the policy does not specify barrier type, a berm is considered a form of barrier and would be included in the height calculation. As such, only a 4-foot wall would be permitted on top of a 4-foot berm under the Noise Policy and Utah Code. However, a 4-foot wall on top of a 4-foot berm would not result in a reduction of at least 5dBA for 75 percent of front-row (adjacent) receivers as described in Section C-1 of the Noise Policy. As a result, a barrier of 8 feet would not meet the requirements of the Noise Policy and it would not be considered a prudent investment of public funds to construct noise abatement measures that are largely ineffective. As part of this policy, noise barriers will be consistent with local ordinances restricting wall height of 8 feet in height. The City of Logan standard for wall height in residential zones adjacent to arterial or collector streets is 6 feet. The UDOT has no authority regarding variances to local ordinances.

**Comment 8-2:** 200 South must have a traffic light – hundreds more homes are being built that will use that intersection.

**Response:** Please see the response to Comment 3-2.

**Comment 8-3:** 600 South should have a left turn light installed.

**Response:** At present, the current 600 South Street intersection does not meet required warrants for installation of a left-turn arrow. Future installation of a possible left-turn traffic signal phase at 600 South Street would be dependent upon meeting requirements of a future signal warrant analysis.

*(Response to Comment Letter 8 continued on next page)*

**Comment 8-4:** Irrigation cannot be interrupted in summer season.

**Response:** While the phasing of construction activities are based upon a schedule provided by the contractor, it is anticipated that active coordination among the contractor, UDOT, and City of Logan will result in a schedule that balances the needs of the contractor, UDOT, City of Logan, SR-252 users, and adjacent residents. This schedule will include coordination with utility companies and city services that may be impacted by construction activities.

**Comment 8-5:** Noise: Logan City needs to have ordinance that restricts truck engine brakes in city limits.

**Response:** The UDOT has no authority regarding establishment of local ordinances. Enforcement and implementation of City of Logan ordinances are beyond the scope of the Project.



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## COMMENT LETTER 9



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Valerie Grasse Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☐ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) Landlord

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

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#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

#1

Because I own one of the  
17 houses which you will take I need to  
know as soon as possible on that the house  
is rented & I need to inform them (the renters)  
how long they can live there.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 9

**Comment 9-1:** Because I own one of the 17 houses which you will take, I need to know as soon as possible on that. The house is rented & I need to inform them (the renters) how long they can live there.

**Response:** Property acquisition will begin upon completion and UDOT approval of the Study and will be completed prior to beginning construction activities. This process is anticipated to take up to 6 months providing time to coordinate relocations.

## COMMENT LETTER 10



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Alan Huckley Phone [REDACTED]  
Address [REDACTED] E mail [REDACTED]  
Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1 | I like the plan, especially through the residential area!  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

#2 | Snow Placing needs to be done in a way that the  
sidewalks can be cleared/plowed especially where the sidewalk  
is next to the curb.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1 888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 10

**Comment 10-1:** I like the plan, especially through the residential area!

**Response:** No response required.

**Comment 10-2:** Snow plowing needs to be done in a way that the sidewalks can be cleared/plowed especially where the sidewalk is next to the curb.

**Response:** The widened shoulder and roadway improvements incorporated into the design will provide an additional area for snow removed from the roadway and sidewalks.

## COMMENT LETTER 11

# Logan 10<sup>th</sup> West

SR 252

Public Comment Form #4  
Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

### 1. Contact Information

Name RAY KALBITZ Phone [REDACTED]  
Address [REDACTED] E mail [REDACTED]  
Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

### 2. Design Plan:

 Please provide your comments regarding the planned design as presented.

- #1 1. Sound walls need to be installed between 2nd South & 6th South. Even though ordinances state nothing over 8' waivers or design changes can be accomplished. (West side of road)
- #2 2. Signal @ 2nd South. There are only 2 exits out of the entire subdivision
- #3 3. Communication between state & homeowner has been intermittent @ best. We need more communication

### 3. Other Project Issues:

 Please provide any other comments regarding the project or the environmental document.

- #4 The home next to mine has an addition well what is going to be done with it?
- #5 Who is responsible for sidewalk fences?

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1 888 583 6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)



## RESPONSE TO COMMENT LETTER 11

**Comment 11-1:** Sound walls need to be installed between 2<sup>nd</sup> South & 6<sup>th</sup> South. Even though ordinances state nothing over 8' waivers or design changes can be accomplished. (West side of the road).

**Response:** Please see the response to Comment 8-1 regarding the noise walls.

**Comment 11-2:** Signal @ 2<sup>nd</sup> South. There are only 2 exits out of the entire subdivision.

**Response:** Please see the response to Comment 3-2.

**Comment 11-3:** Communication between state & homeowner has been intermittent @ best. We need more communication.

**Response:** The public has had various opportunities to review the Project and the Study, and to provide comment. These opportunities have included open houses, public hearing, Project website, and Project newsletters. Please see Appendix B of the Study. Additional communication with Mr. Kaighn will be initiated to provide any requested information or clarification.

**Comment 11-4:** The home next to mine has an artesian well. What is going to be done with it?

**Response:** Roadway construction impacts to utilities and features, such as the referenced well, will be coordinated with the appropriate utility company, controlling agency, or the property owner as to services or operation.

**Comment 11-5:** Who is responsible for the sidewalk fences?

**Response:** Please see the response to Comment 2-3.

## COMMENT LETTER 12



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Donell C. Kungler Phone [REDACTED]  
Address [REDACTED] mail [REDACTED]  
Your corridor use: ☐ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) property owner

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

- #1 River Bridge need to be designed so cattle can be driven under -  
walk bridge to cross from one side to the other this is  
on the north side of river
- #2 Irrigation ditch south of bridge needs a headgate  
installed on the east side of road.
- #3 Fence needs to be a 48" mesh with barbed wire  
on top. It needs to be well spaced. Gates need to  
be of a much better quality than one this year.  
I would like meet with project engineers on sight  
to go over these items

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

- #4 make a wide approach on 11th south so a semi  
can turn on and off the road

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 12

**Comment 12-1:** River bridge need to be designed so cattle can be driven underneath the bridge to cross from one side to the other. This is on the north side of the river.

**Response:** While it is true that the current width between the existing river bank and the abutments restricts cattle movements under the bridge, the State is required by law to limit any impacts on riparian environment, river channel, or wetlands to those required to meet the Project purpose and need. The bridge structure cannot be expanded for better cattle movement under the bridge.

**Comment 12-2:** Irrigation ditch north of bridge needs a headgate installed on the east side of road.

**Response:** No existing gate currently exists on the referenced culvert. Installation of a head gate could result in impact to the proposed roadway embankment through saturation of the embankment soils. Additionally, this feature would be used for on-site property irrigation purposes which are outside of the scope of the Project. Therefore, installation of the suggested head-gate is not anticipated within the Project.

**Comment 12-3:** Fence needs to be a 48" mesh with barbed wire on top. It needs to be well braced. Gates need to be of a much better quality than are there now. I would like to meet with project engineer on sight to go over these items.

**Response:** Please see the response to Comment 2-3.

**Comment 12-4:** Make a wide approach on 11<sup>th</sup> South so a semi can turn on and off the road.

**Response:** Please see the response to Comment 2-2.

## COMMENT LETTER 13

# Logan 10<sup>th</sup> West

SR 252

Public Comment Form #4  
Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

### 1. Contact Information

Name Carol Larsen Phone [REDACTED]  
Address [REDACTED] Email [REDACTED]

Your corridor use: ☐ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) Parking

### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1 I have a duplex on 570 So. 10<sup>th</sup> West  
There are 2 parking spaces in the garage  
& we will need to retain 3 parking spaces  
in front of the garage.  
Please let me know what can be  
done.

### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 13

**Comment 13-1:** I have a duplex on 570 South, 10<sup>th</sup> West. There are 2 parking spaces in the garage & we will need to retain 2 parking spaces in front of the garage. Please let me know what can be done.

**Response:** The proposed driveway improvements will provide appropriate area (length and width) to address this concern.

## COMMENT LETTER 14



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:

Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Kyle Comer Phone [REDACTED]

Address [REDACTED] Email [REDACTED]

Your corridor use: Resident ☐ Bypass ☐ Business ☒ Employment ☐ Other (describe) ☐

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

2 PROJECT ADDRESS @ 420 WEST 2500 NORTH  
NORTH LOGAN, (AIRPORT RD)

APPROACH TO BUILDING @ 420 WEST  
2500 NORTH.

(QUESTION) AS TO THE PLACEMENT OF  
THE APPROACH. ABILITY TO BRING SEMI TRUCKS  
INTO BUILDING.

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

[Empty lines for additional comments]

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)



## RESPONSE TO COMMENT LETTER 14

**Comment 14-1:** Will the placement of the approach to the building @ 420 West 2500 North have the ability to bring semi trucks to the building?

**Response:** Driveway access will be modified to center on the structures garage door. Finalization of this approach will be completed during the Project's final design and coordinated with the property owner as part of the ROW process.

## COMMENT LETTER 15



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer; Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Kim V. Shurtleff Phone [REDACTED]

Address [REDACTED] E mail [REDACTED]

Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

#1

I am impressed + relieved that so much research & evaluations have been done regarding the 600-5 to 200-5 area for the residential areas. I like the frontage road with curves + the landscape planning.

#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

Just a Thank you for Diligence.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1 888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

## RESPONSE TO COMMENT LETTER 15

**Comment 15-1:** I am impressed & relieved that so much research & evaluations have been done regarding the 600 S to 200 S area for the residential areas. I like the frontage road with curves & landscape planning.

**Response:** No response required.

## COMMENT LETTER 16



### Public Comment Form #4 Public Hearing: March 23, 2010

Please return to the project team at the completion of the meeting. Or send by April 1, 2010 to:  
Kyle Comer, Civil Science, Inc., 95 W. Golf Course Rd. Suite #103, Logan, UT 84321

(Comments may also be submitted at the project web site, email, or toll free number shown at the bottom of this form)

#### 1. Contact Information

Name Glen O. Wattle Phone [REDACTED]  
Address [REDACTED]  
Your corridor use: ☒ Resident ☐ Bypass ☐ Business ☐ Employment ☐ Other (describe) \_\_\_\_\_

#### 2. Design Plan: Please provide your comments regarding the planned design as presented.

- #1 I have concerns about the impact the new road will have on our irrigation water for the land circling the house.
- #2 I have concerns about the flowery will used to water lawn in front of house.
- #3 How will the new entrance affect the animals in field.

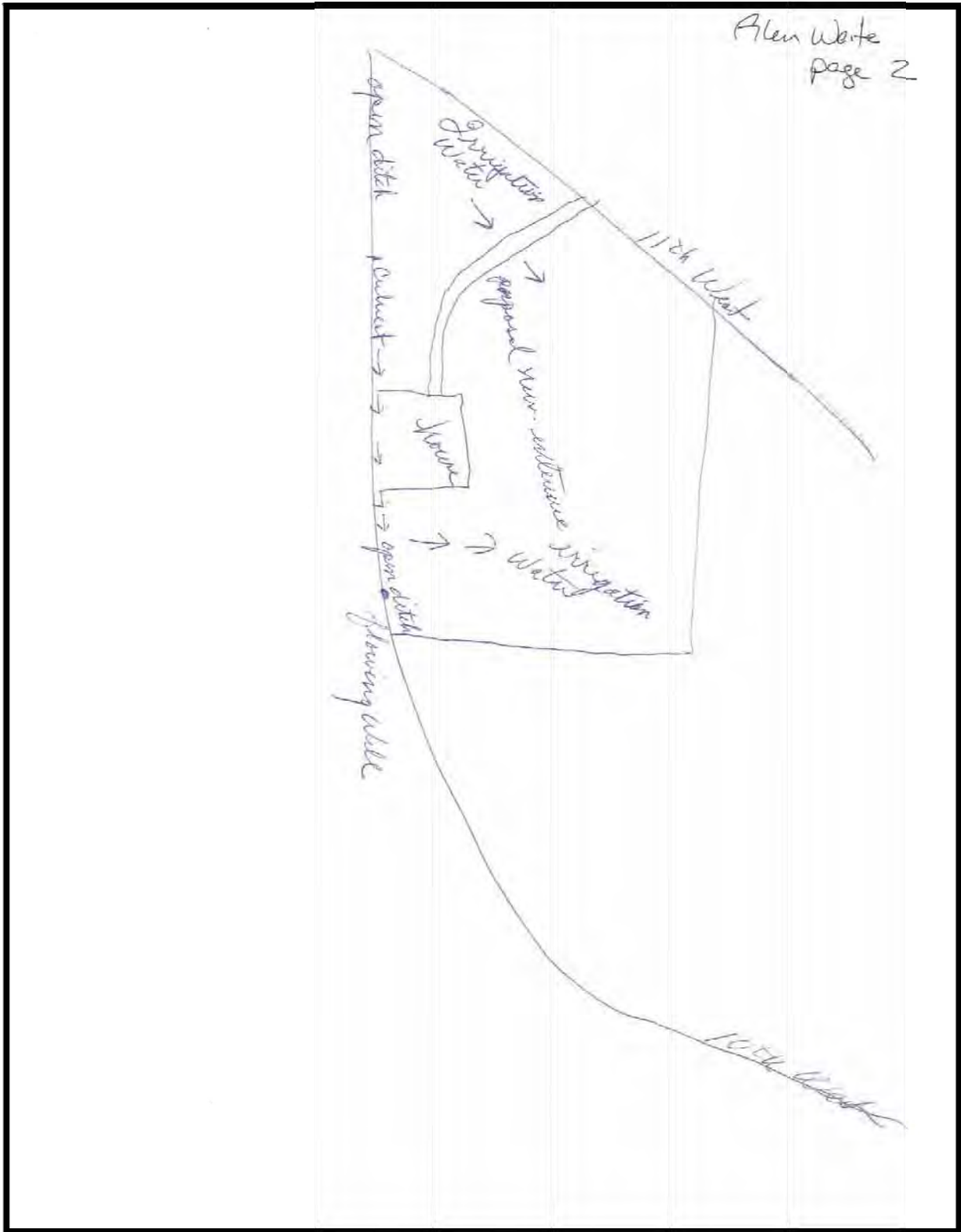
#### 3. Other Project Issues: Please provide any other comments regarding the project or the environmental document.

- #2 Will the new entrance road be black topped?
- #3 We would like some compensation for the land in the corner that will be lost.

Project e mail: [tenthwest@utah.gov](mailto:tenthwest@utah.gov) / Toll Free Phone 1-888-583-6849 / Web site: [www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)

- Over -

COMMENT LETTER 16 (CONTINUED)



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## RESPONSE TO COMMENT LETTER 16

**Comment 16-1:** We have concerns about the impact the new road will have on our irrigation water for the land circling the home.

**Response:** There will be minor impacts to portions of the existing irrigation ditch and pipe. These elements will be relocated in-kind to a location outside of the anticipated conflict but within the identified easement.

**Comment 16-2:** Concerns about the flowing well used to water lawn and flowers.

**Response:** The flowing well is not anticipated to be impacted by proposed roadway improvements as the roadway slopes do not encroach upon the parcel at this location.

**Comment 16-3:** How will the new entrance affect the animals in field.

**Response:** Impact to pasture animals, final location of the relocated drive access, and cross lot irrigation will be coordinated as part of the property acquisition and ROW process. Construction of the new driveway access will be coordinated with the owner as part of the final design.

## COMMENT LETTER 17



GARY R. HERBERT

Governor

GREG BELL  
Lieutenant Governor

### State of Utah

#### DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STVLER

Executive Director

#### Division of Water Rights

KENT L. JONES

State Engineer Division Director

April 7, 2010

Civil Science, Inc.  
3160 West Clubhouse Drive, Ste. A  
Lehi, UT 84043

Re: Logan 10<sup>th</sup> West Project

The Division of Water Rights (State Engineer's Office) has jurisdiction and authority to administer state law regarding stream alterations. Section 73-3-29 of the Utah Code requires any person, governmental agency, or other organization wishing to alter the bed or banks of a natural stream to obtain written authorization from the State Engineer prior to beginning work.

#1 We appreciate the opportunity given to review the draft Environmental Study document for the Logan 10<sup>th</sup> West project. In reviewing the document, our main focus has been the bridge over the Logan River. The proposed plan more than doubles the width of the bridge, including sidewalks and shoulders on both sides as well as a turning lane on the bridge. This seems a bit excessive given the wetland floodplain southwest and north of the bridge. In applying for a stream channel alteration permit you will need to be able to justify the need for the much wider bridge and demonstrate that impacts have been fully minimized.

Sincerely,

Daren Rasmussen, PG  
Stream Alteration Specialist

pc: UDOT Region 1 Headquarters, 166 West Southwell St. Ogden, UT 84404  
Will Atkin, Regional Water Rights Engineer

email: [tenthwest@utah.gov](mailto:tenthwest@utah.gov)

1594 West North Temple, Suite 220, P.O. Box 146900, Salt Lake City, UT 84114-6300  
telephone (801) 538-7240 • facsimile (801) 538-7467 • TTY (801) 538-7458 • [www.waterrights.utah.gov](http://www.waterrights.utah.gov)



## RESPONSE TO COMMENT LETTER 17

**Comment 17-1:** The proposed plans more than doubles the width of the bridge, including sidewalks and shoulders on both sides as well as a turning lane on the bridge. This seems a bit excessive given the wetland floodplain southwest and north of the bridge. In applying for a stream channel alteration permit you will need to be able to justify the need for the much wider bridge and demonstrate that impacts have been fully minimized.

**Response:** The design over the bridge incorporates a center width that is consistent with the turn lane on each side of the bridge. The existing turning median outside the bridge area provides for safe turning movements at the 1600 South roadway and the primary entrance to the parking lot for ICON, Inc. (on the south side of the bridge) as well as private property accesses directly to the north of the bridge. The 1600 South roadway serves an approximate 150 vehicles in the peak hour (2030 design year) necessitating the need for the turn lane. Engineering evaluations that considered the reduction of the center width over the bridge determined that a tapered reduction of the median at the bridge was not feasible due to the distance of these accesses from the bridge.

Sidewalks have been included to provide pedestrian accessibility across the bridge. Due to the 55 mile per hour design speed, a single sidewalk with a crossing on either end of the bridge would pose a substantial safety concern. Separated pedestrian bridge crossings were also considered, but were determined to produce more impact to the riparian/stream environment. The additional impact would result from separate pathway treatments that would need to be connected to the roadway sidewalks through the existing wetland and riparian areas.

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**TRANSCRIPT OF VERBAL COMMENTS  
PUBLIC HEARING  
March 24, 2010**

## TRANSCRIPT PAGE 1

LOGAN 10TH WEST PUBLIC HEARING  
SR 252

\* \* \* \* \*

TRANSCRIPT OF PUBLIC STATEMENTS

Place: Logan City Environmental Center  
450 North 1000 West, Logan, Utah

Date: Tuesday, March 23, 2010

Time: 5:00 p.m. to 7:00 p.m.

*Reporter: Lisa Collman, CSR, RPR, Notary Public*



## TRANSCRIPT PAGE 2

*Logan 10th West, Public Hearing - March 23, 2010*

### I N D E X

<u>Statement of</u>	<u>Page</u>
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Wayne K. Barlow.....	3
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State of Utah Transportation Commission  
4501 South 2700 West  
Salt Lake City, Utah  
Tel. (801) 965-4103

Glen and Karma Waite.....	4
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Sharlene Moe.....	5
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\* \* \*

## TRANSCRIPT PAGE 3

Logan 10th West Public Hearing - March 23, 2010

### STATEMENT OF WAYNE K. BARLOW

MR. BARLOW: I simply wanted to commend UDOT management, the management, the project management for the exemplary way in which this project has been handled so far. I think it is a tribute to the commitment of UDOT and in the interest of the public to conduct it in the manner that they've been doing it. What I see here tonight is impressive, and I'm sure that the property owners along this SR 252 are going to be happy with the outcome.

\* \* \*

3

Garcia & Love Reporting \* 801-538-2333

## RESPONSE TO VERBAL COMMENT #1

**Verbal Comment 1:** I simply want to commend UDOT management, the management, the project management for the exemplary way in which this project has been handled so far. ...I'm sure that the property owners along this SR 252 are going to be happy with the outcome.

**Response:** No response required.

## TRANSCRIPT PAGE 4

Logan 10th West Public Hearing - March 23, 2010

### STATEMENT OF KARMA AND GLEN WAITE

1  
2 MRS. WAITE: Our concerns are as the new easement  
3 comes onto the highway, 89/91, that they want to close both of  
4 our entrances to the highway and make a new entrance going from  
5 the home and going down to the 11th West Road. It cuts through  
6 our pasture. We're concerned about the irrigation of the  
7 pasture, will they culvert water under this new road so we can  
8 water that, and will it impact the ditch that goes along the  
9 highway on the property line to the garden, and also is  
10 culverted past the house and into the pasture on the north side  
11 of the house.

12 And then we also have a flowing well on the north  
13 end of the property right on the fence line of the road, and  
14 we're concerned about what will happen to the well.

15 What else? Oh, and the impact of any animals that  
16 we have in the pasture, how this road -- and will they build the  
17 road, and will it be a properly blacktopped road, where both of  
18 our driveways were blacktopped.

19 Now, anything else I need? Irrigation and the  
20 concerns about the flowing well and the entrance, the blacktop.  
21 I guess that's our concerns.

22 \* \* \*

23  
24  
25  
Garcia & Love Reporting \* 801-538-2333

4

## RESPONSE TO VERBAL COMMENT #2

**Verbal Comment 2:** As the new easement comes onto the highway, 89/91, that they want to close both of our entrances to the highway and make a new entrance going from the home and going down to the 11<sup>th</sup> West Road. It cuts through our pasture. We're concerned about the irrigation of the pasture, will they culvert water under this new road so we can water that, and will it impact the ditch that goes along the highway on the property line to the garden, and also is culverted past the house and into the pasture on the north side of the house. WE also have a flowing will on the north end of the property on the fence line, and we're concerned about what will happen to the well. Impact to any animals that we have in the pasture and how the road will be built. Will it be properly blacktopped?

**Response:** To improve the roadway safety, acceleration lane improvements have been designed along US-91. This acceleration lane will require the relocation of the resident's current driveway access away from US-91 and onto 1100 West Street because of safety concerns. The acceleration lane, improved shouldering, and roadway features will also require a permanent slope/utility easement along the residents adjoining parcel line to accommodate roadway slopes and possible utility relocations. Please see response to Written Comment 16a-c.

## TRANSCRIPT PAGE 5

*Logan 10th West Public Hearing - March 23, 2010*

### STATEMENT OF SHARLENE MOE

MS. MOE: One thing that I would like to suggest or encourage, on the Thomas Court Circle where there is no through traffic and they're bringing the road through, at the southeast corner of Thomas Court there will now be access to traffic, if they would put a speed bump or a speed dip. And the same thing on the northeast corner. That would -- that's what I -- that was my suggestion.

Well, I just was hoping it would have some kind of impact on that -- on Second South and Tenth West, there's that wetland area with the big trees and the springs. I was just hoping that there would be a little bit of aesthetic improvement.

\* \* \*



## RESPONSE TO VERBAL COMMENTS #3 AND #4

**Verbal Comment 3:** I would suggest that on Thomas Court Circle where there is no through traffic and they're bringing the road through, at the southeast corner of Thomas Court there will now be access to traffic, if they would put a speed bump or a speed dip. And the same thing on the northeast corner.

**Response:** Traffic calming improvements as suggested will be coordinated with City of Logan as part of the final design to determine if these features are included in the Project.

**Verbal Comment 4:** I was hoping for aesthetic treatment in the vicinity of Second South and Tenth West where there is a wetland area with big trees and the springs.

**Response:** The visual and aesthetic aspects are an important part of the Project that will be included during final design and in accordance with UDOT policy.

## TRANSCRIPT PAGE 6

*Logan 10th West Public Hearing - March 23, 2010*

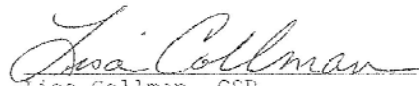
### C E R T I F I C A T E

I, Lisa Collman, Certified Shorthand Reporter and Notary Public within and for the County of Davis and the State of Utah, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth, and were taken down by me in shorthand and thereafter transcribed into typewriting under my direction and supervision.

That the foregoing 5 pages contain a true and correct transcription of my shorthand notes so taken.

In witness thereof, I have hereunto transcribed my name this 29th day of March, 2010.

  
Lisa Collman, CSR  
Utah License No. 10783607801

6

—Garcia & Love Reporting \* 801-536-2323—

## **CHAPTER 5**

### **REFERENCES**



## 5.0 REFERENCES

- [City of Logan] City of Logan, Utah. 1984. Flood Insurance Rate Map (FIRM). Federal Emergency Management Agency. Community Panel Number 490019 0007 B.
- [City of Logan] City of Logan, Utah. 2007. Logan General Plan, Proposed Final Draft, September 2007.
- [City of Logan] City of Logan, Utah. 2009 (02/05/2010). Northern Cache Valley Storm Water Design Standards. [http://www.loganutah.org/public\\_works/Engineering/pdf/StormWaterDesignCriteria2009-04-06.pdf](http://www.loganutah.org/public_works/Engineering/pdf/StormWaterDesignCriteria2009-04-06.pdf)
- Civil Science. 2008. Logan River 1000 West Bridge Crossing Hydrology/Hydraulics Summary. Lehi (UT): Civil Science.
- Civil Science. 2009. SR-252, Logan 1000 West Project Drainage Summary. Lehi (UT): Civil Science.
- [CMPO] Cache Metropolitan Planning Organization. 2007. 2030 Regional Transportation Plan. Adopted June 11.
- [CMPO] Cache Metropolitan Planning Organization. 1999. Long Range Pedestrian/Bicycle Plan. Document prepared by Fehr & Peers Associates, Inc. and BIO-WEST, Inc., June.
- Comer K. 02/02/2010. Principle owner, Civil Science. E-mail correspondence with Shannon Herstein of BIO-WEST, Inc., Logan, Utah, regarding information about storm water runoff.
- [Cornerstone] Cornerstone Real Estate Professionals, LLC. 2/5/2010. Utah homes for sale. Location: [http://www.realestatelogan.com/utah\\_homes.htm](http://www.realestatelogan.com/utah_homes.htm)
- Gilbert J. 9/1/2009. Cache Metropolitan Planning Organization. Personal communication with Sean Keenan of BIO-WEST, Inc., Logan, Utah, regarding status of National Ambient Air Quality Standards in Cache County, Utah.
- Johnson W. 2008a. An architectural reconnaissance inventory of the proposed 1000 West/SR-252 Project in Logan City, Cache County, Utah. September 10, 2008. Public Lands Policy Coordination Office Permit No. 58. Utah State Antiquities Project Number U-08-SJ-0212p,s. UDOT Project No. S-0252(6)0. Sagebrush Consultants, Ogden, Utah. Cultural Resources Report No. 1676. 22 p.
- Johnson W. 2008b. A cultural resources survey of the proposed 1000 West/SR-252 Project in Logan City, Cache County, Utah. September 10, 2008. UDOT Project No. S-0252(6)0. Sagebrush Consultants, Ogden, Utah. Cultural Resources Report No. 1676. 22 p.

- Johnson W. 2008c. Addendum: A cultural resources survey of the proposed 1000 West/SR-252 Project in Logan City, Cache County, Utah. November 26, 2008. UDOT Project No. S-0252(6)0. Sagebrush Consultants, Ogden, Utah. Cultural Resources Report No. 1676. 5 p.
- Johnson, W. 2009. Addendum: A cultural resources survey of the proposed 1000 West/SR-252 Project in Logan City, Cache County, Utah. November 26, 2008. UDOT Project No. S-0252(6)0. Sagebrush Consultants, Ogden, Utah. Cultural Resources Report No. 1676. 8 p.
- [NCES] National Center for Education Statistics. 2/1/2010. Common Core of Data (CCD). Location: <http://www.nces.ed.gov/ccd/>
- [City of North Logan] City of North Logan, Utah. 2008. General Plan, Planning Commission Final Draft, April 2, 2008.
- [TRB] Transportation Research Board, Committee on Highway Capacity and Quality of Service. 2000. 2000 highway capacity manual. Washington (D.C.): Transportation Research Board of the National Academies. 1,134 p.
- U.S. Census. 2000. United States Census 2000. Location: <http://www.census.gov/main/www/cen2000.html>
- U.S Census American Community Survey. 2006. Location: <http://www.census.gov/acs/www/index.html>
- [UDAQ] Utah Division of Air Quality. 11/24/2008a. Particulate Matter. Location: [http://www.airquality.utah.gov/Public-Interest/about\\_pollutants/about\\_pm.htm](http://www.airquality.utah.gov/Public-Interest/about_pollutants/about_pm.htm).
- [UDAQ] Utah Division of Air Quality. 11/24/2008b. Utah Air Pollution Data Archive. Location: <http://www.airmonitoring.utah.gov/dataarchive/index.htm>
- [UDOT] Utah Department of Transportation. 2008a. SR-252: 1000 West Corridor Improvement Project Final Traffic Engineering Report. Prepared by Kimley-Horn and Associates, Inc. in association with Civil Science, Inc., Revised August 25.
- [UDOT] Utah Department of Transportation. 2008b. Noise abatement policy. UDOT 08A2 1. Effective November 6, 1987. Revised October 2008. Salt Lake City: Utah Department of Transportation. 18 p.



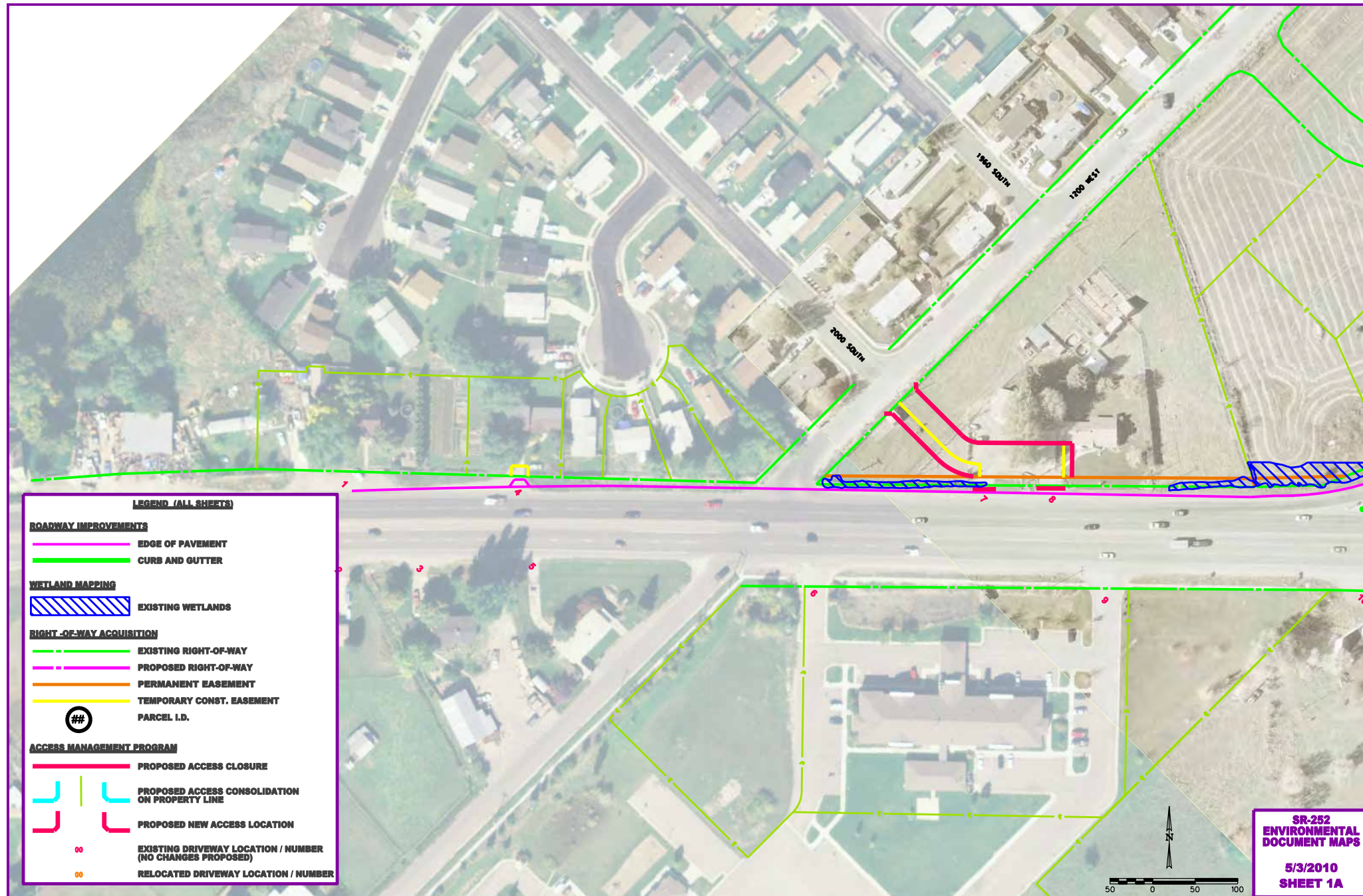
[UDOT] Utah Department of Transportation. 2007. Truck traffic on Utah highways. Report on annual daily traffic. Salt Lake City: Utah Department of Transportation. 89 p.

[USDA] U.S. Department of Agriculture. 2007. 2007 Census of agriculture, Cache County, Utah. United States Department of Agriculture, National Agricultural Statistics Service. Location: [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/County\\_Profiles/Utah?Index.asp](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/Utah?Index.asp).



**APPENDIX A**  
**PROJECT MAP SET**





**LEGEND (ALL SHEETS)**

**ROADWAY IMPROVEMENTS**

- EDGE OF PAVEMENT
- CURB AND GUTTER

**WETLAND MAPPING**

- EXISTING WETLANDS

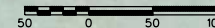
**RIGHT-OF-WAY ACQUISITION**

- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PERMANENT EASEMENT
- TEMPORARY CONST. EASEMENT
- PARCEL I.D.



**ACCESS MANAGEMENT PROGRAM**

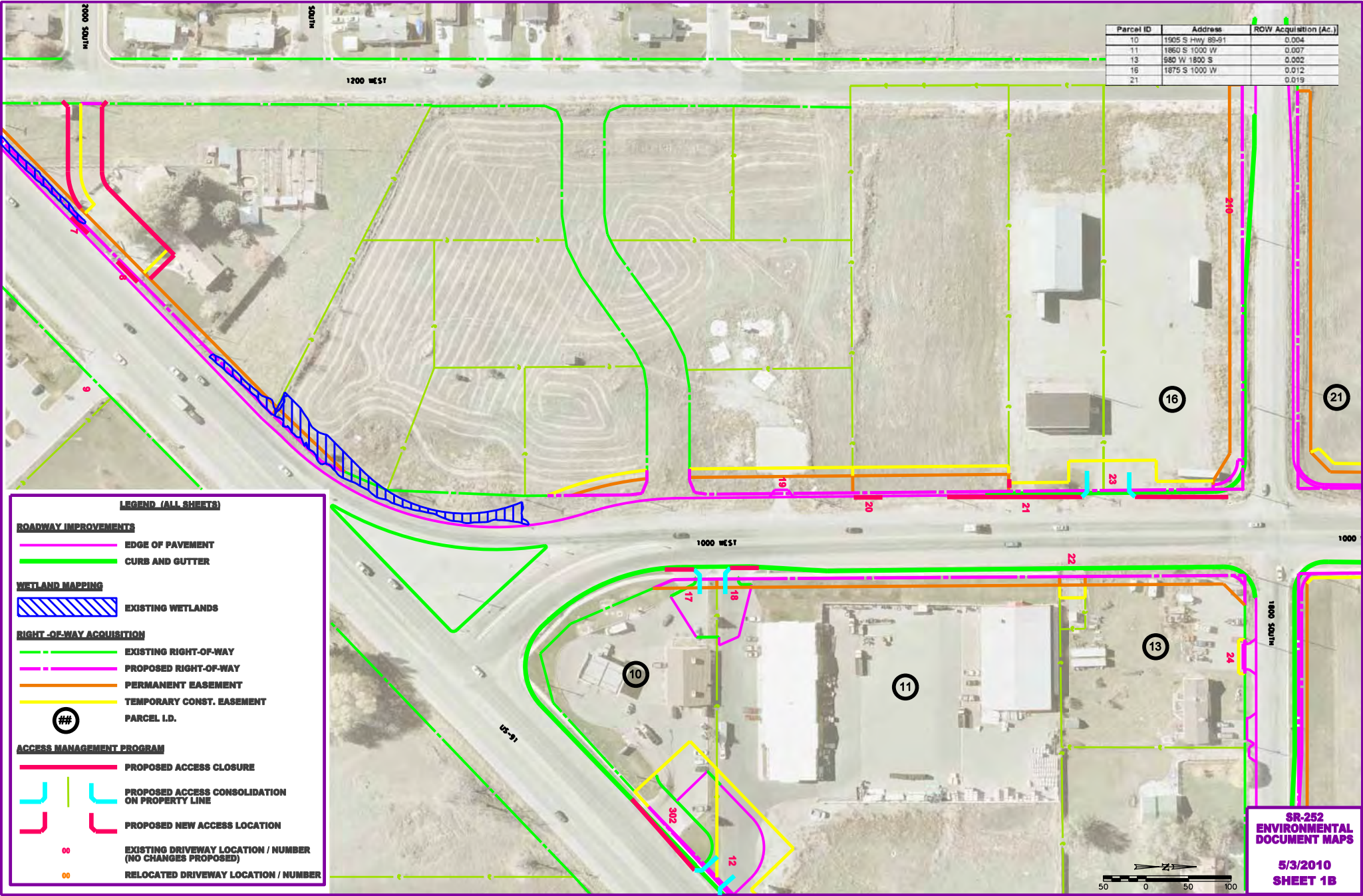
- PROPOSED ACCESS CLOSURE
- PROPOSED ACCESS CONSOLIDATION ON PROPERTY LINE
- PROPOSED NEW ACCESS LOCATION
- EXISTING DRIVEWAY LOCATION / NUMBER (NO CHANGES PROPOSED)
- RELOCATED DRIVEWAY LOCATION / NUMBER



SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

5/3/2010  
SHEET 1A





Parcel ID	Address	ROW Acquisition (Ac.)
10	1905 S Hwy 89-91	0.004
11	1860 S 1000 W	0.007
13	980 W 1800 S	0.002
16	1875 S 1000 W	0.012
21		0.019

**LEGEND (ALL SHEETS)**

**ROADWAY IMPROVEMENTS**

- EDGE OF PAVEMENT
- CURB AND GUTTER

**WETLAND MAPPING**

- EXISTING WETLANDS

**RIGHT-OF-WAY ACQUISITION**

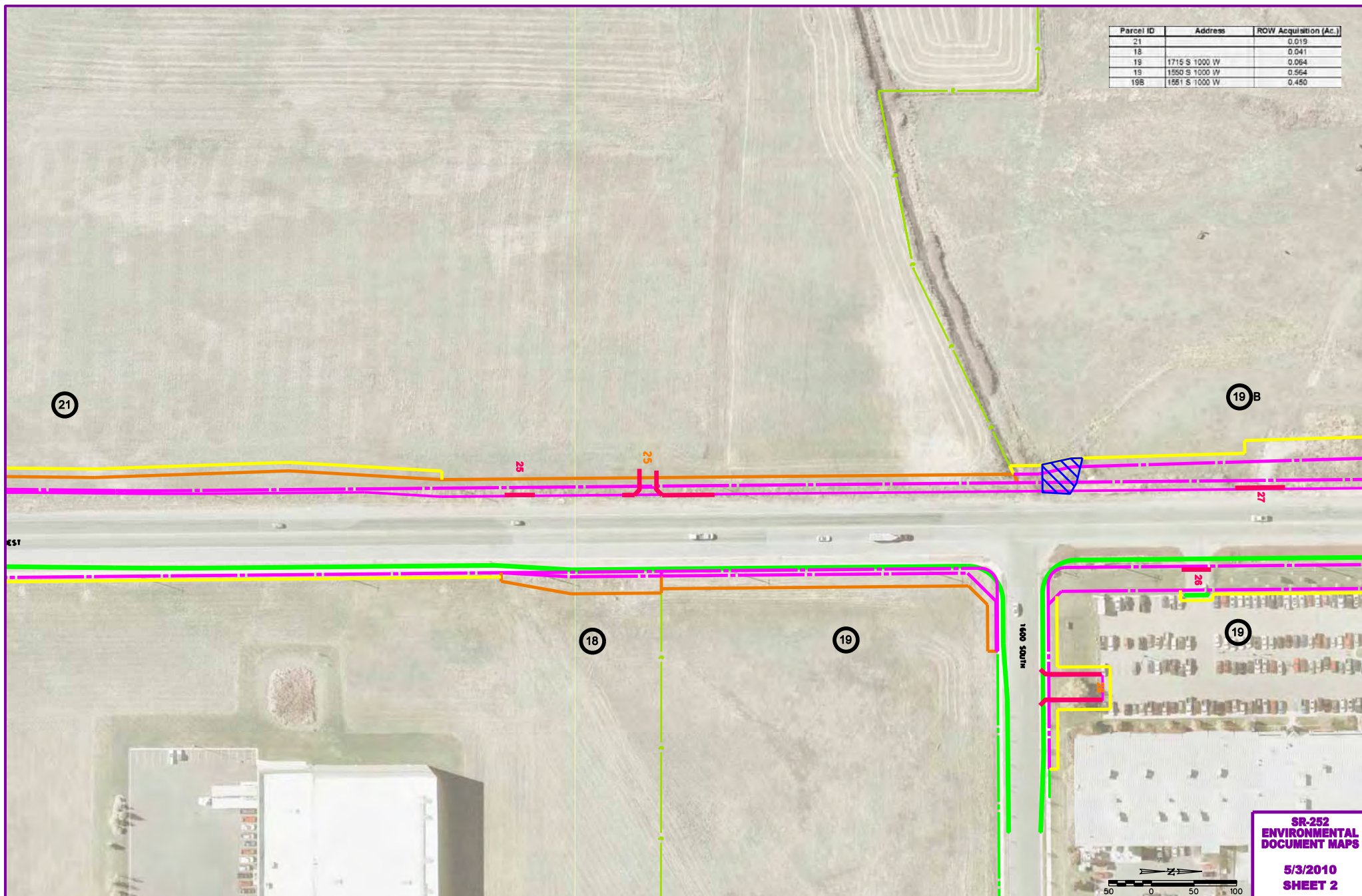
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- PERMANENT EASEMENT
- TEMPORARY CONST. EASEMENT

**ACCESS MANAGEMENT PROGRAM**

- PROPOSED ACCESS CLOSURE
- PROPOSED ACCESS CONSOLIDATION ON PROPERTY LINE
- PROPOSED NEW ACCESS LOCATION
- EXISTING DRIVEWAY LOCATION / NUMBER (NO CHANGES PROPOSED)
- RELOCATED DRIVEWAY LOCATION / NUMBER



Parcel ID	Address	ROW Acquisition (Ac.)
21		0.019
18		0.041
19	1715 S 1000 W	0.064
19	1550 S 1000 W	0.564
19B	1551 S 1000 W	0.450



SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

5/3/2010  
SHEET 2

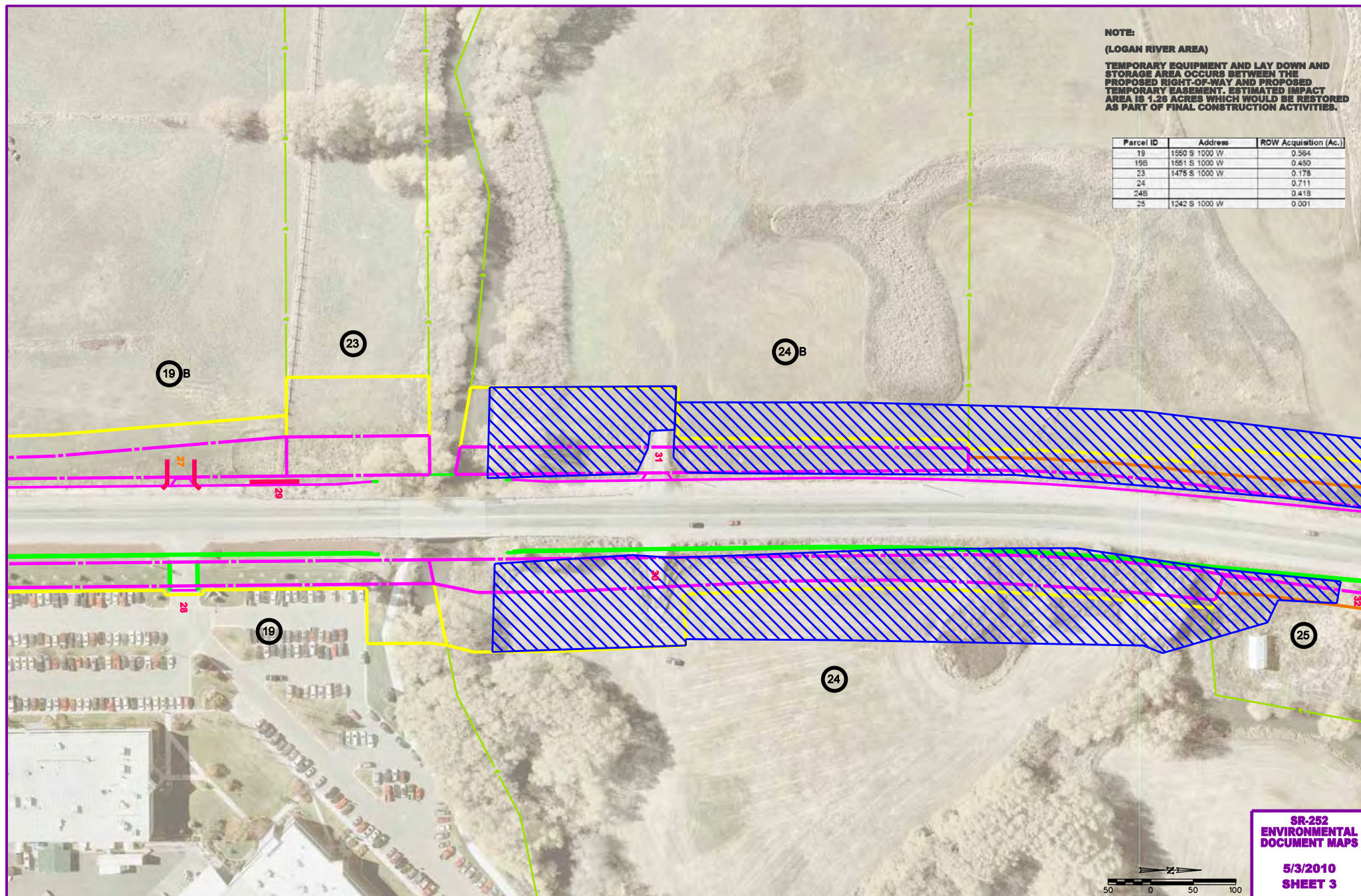


**NOTE:**

**(LOGAN RIVER AREA)**

**TEMPORARY EQUIPMENT AND LAY DOWN AND STORAGE AREA OCCURS BETWEEN THE PROPOSED RIGHT-OF-WAY AND PROPOSED TEMPORARY EASEMENT. ESTIMATED IMPACT AREA IS 1.26 ACRES WHICH WOULD BE RESTORED AS PART OF FINAL CONSTRUCTION ACTIVITIES.**

Parcel ID	Address	ROW Acquisition (Ac.)
19	1550 S 1000 W	0.564
19B	1551 S 1000 W	0.450
23	1475 S 1000 W	0.178
24		0.711
24B		0.418
25	1242 S 1000 W	0.001

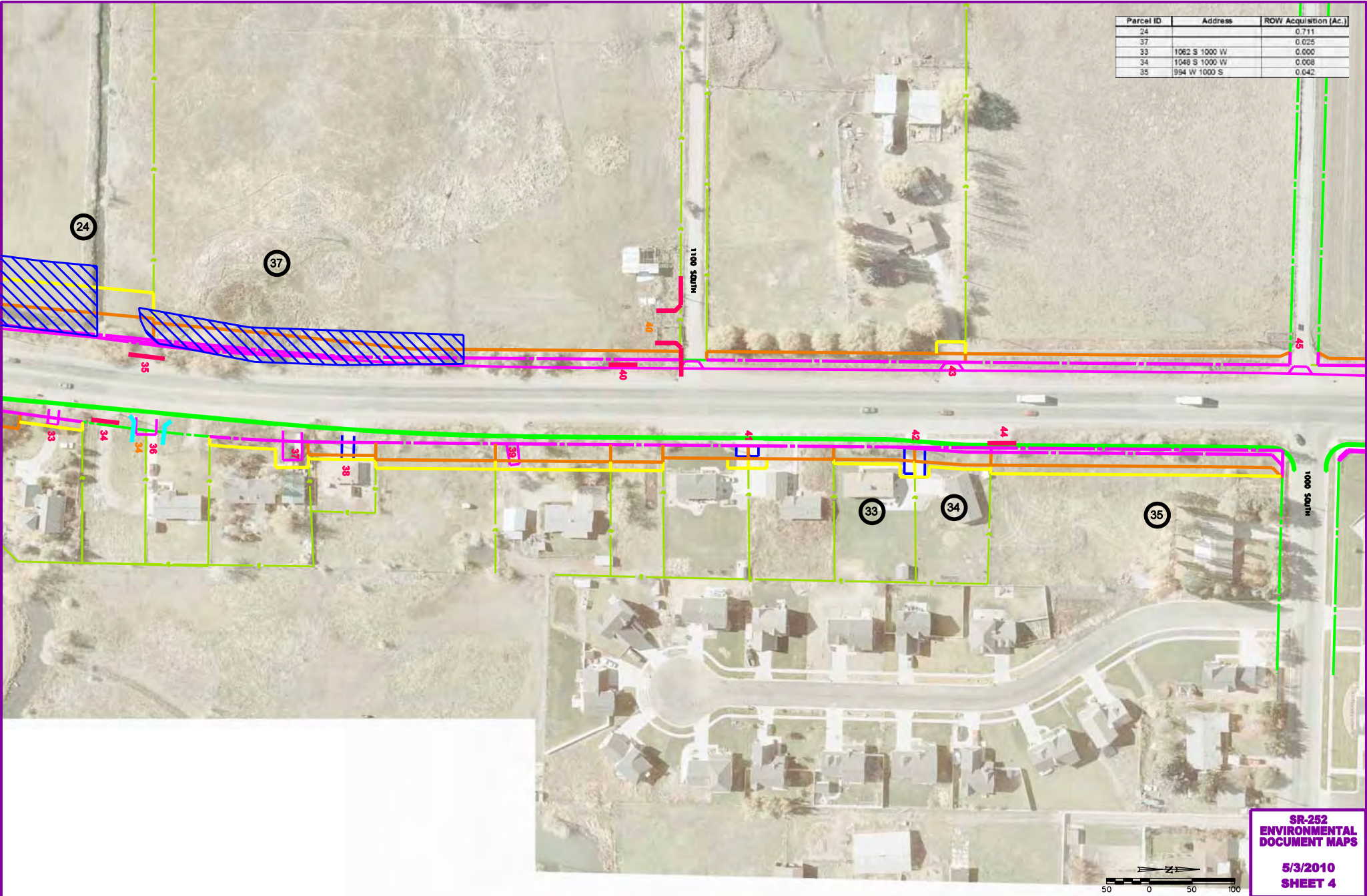


**SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS**

**5/3/2010  
SHEET 3**



Parcel ID	Address	ROW Acquisition (Ac.)
24		0.711
37		0.025
33	1062 S 1000 W	0.000
34	1048 S 1000 W	0.008
35	994 W 1000 S	0.042

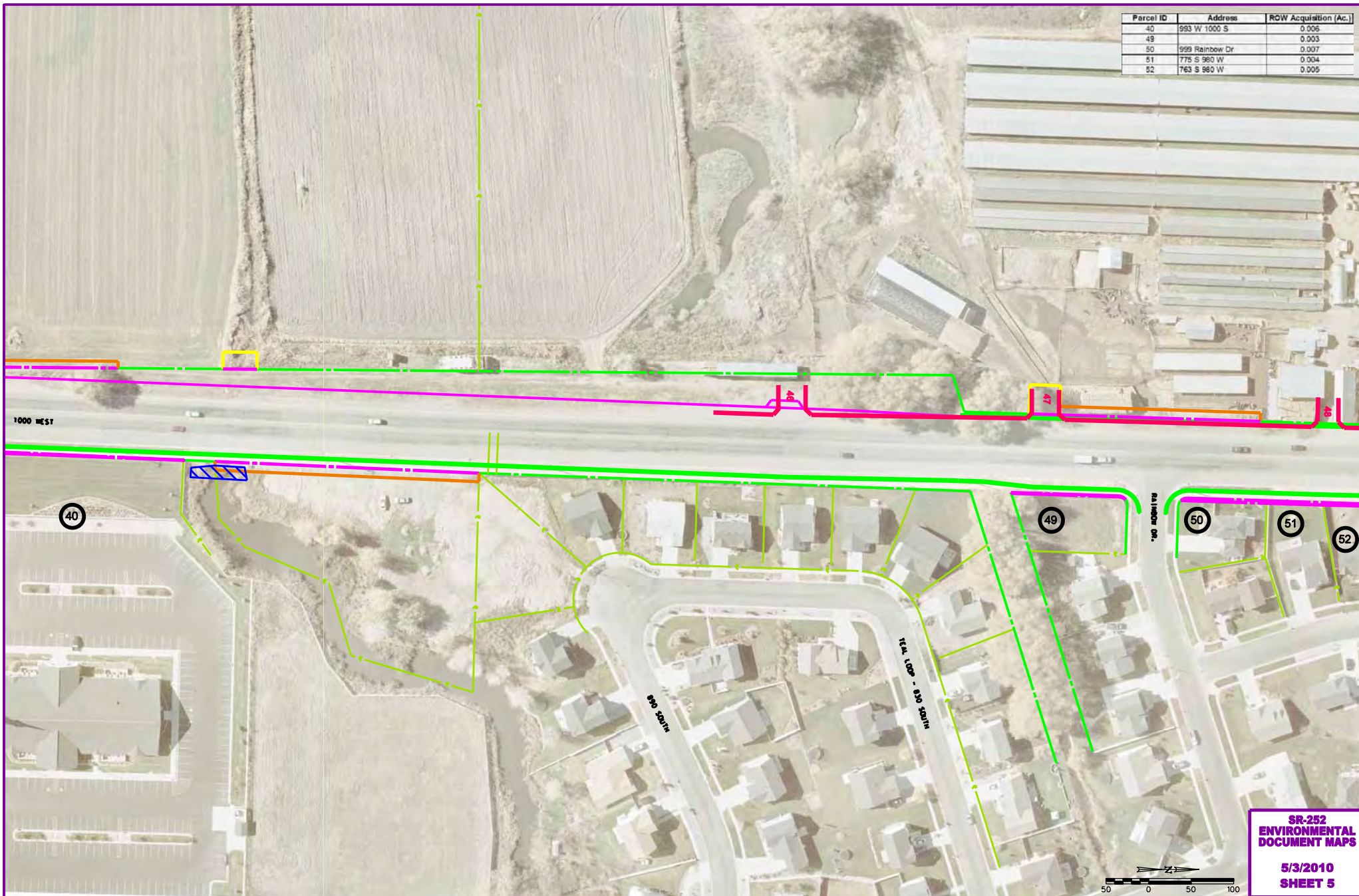


SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

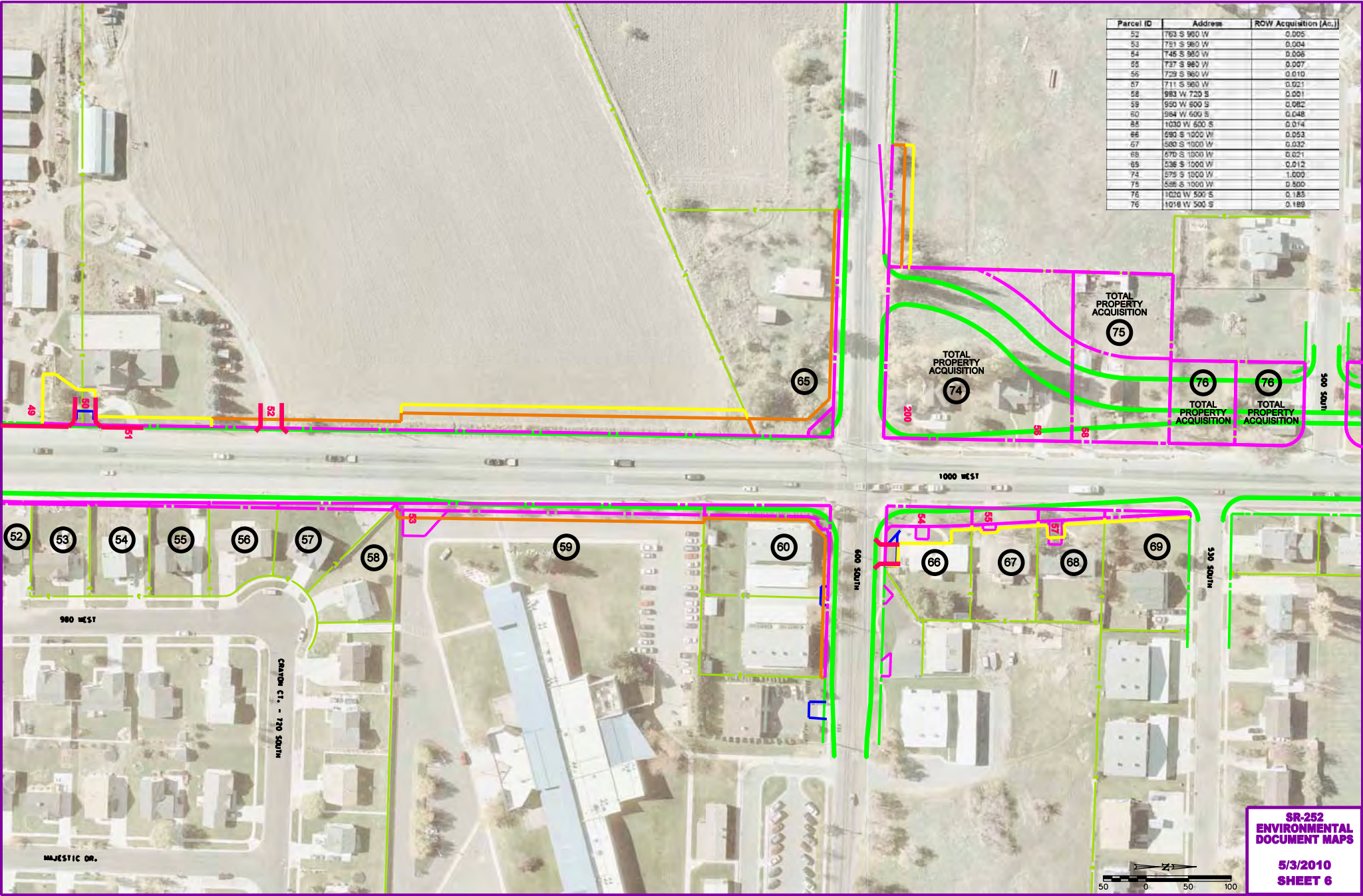
5/3/2010  
SHEET 4



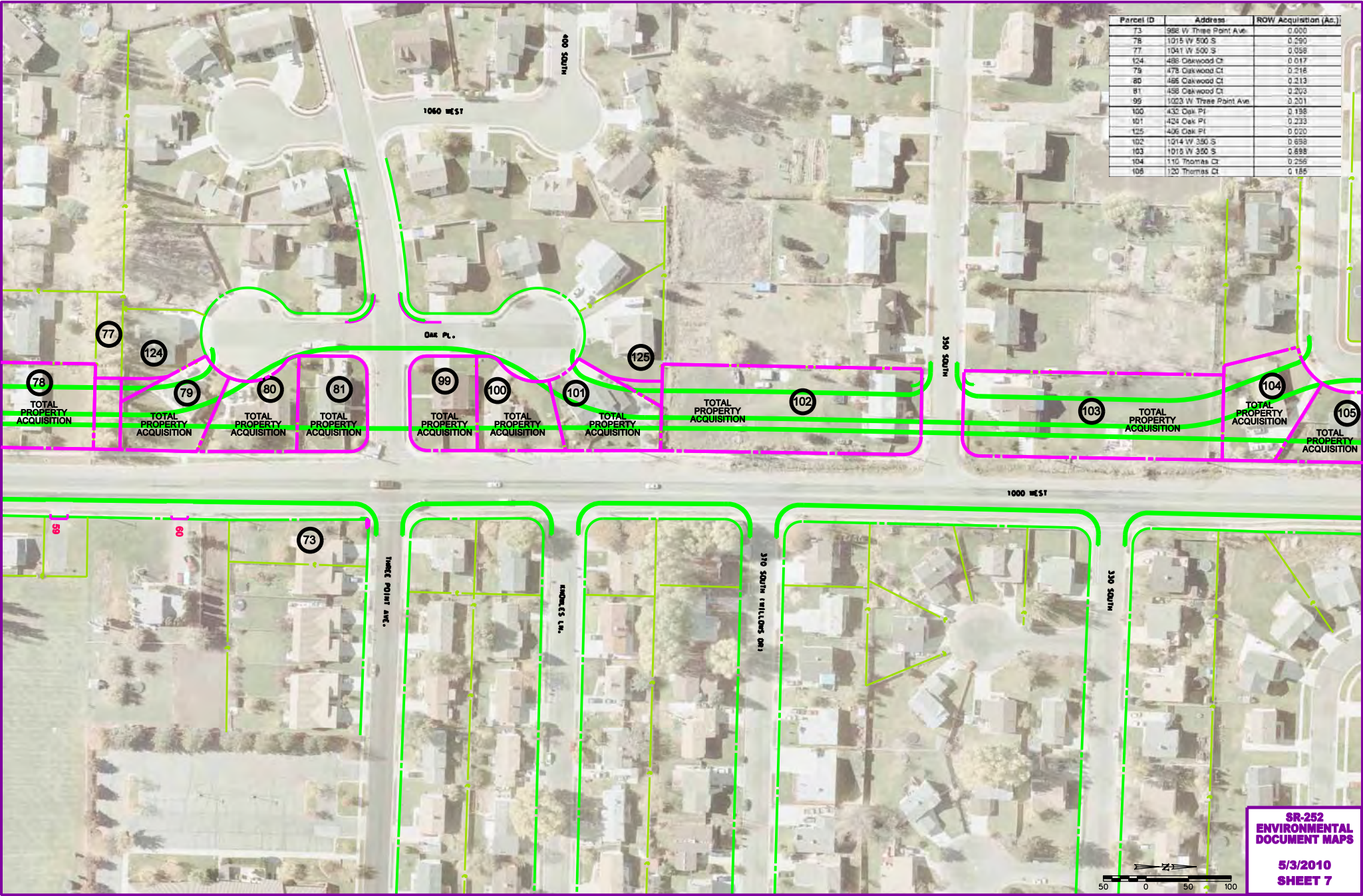
Parcel ID	Address	ROW Acquisition (Ac.)
40	993 W 1000 S	0.006
49		0.003
50	999 Rainbow Cr	0.007
51	775 S 960 W	0.004
52	763 S 960 W	0.005









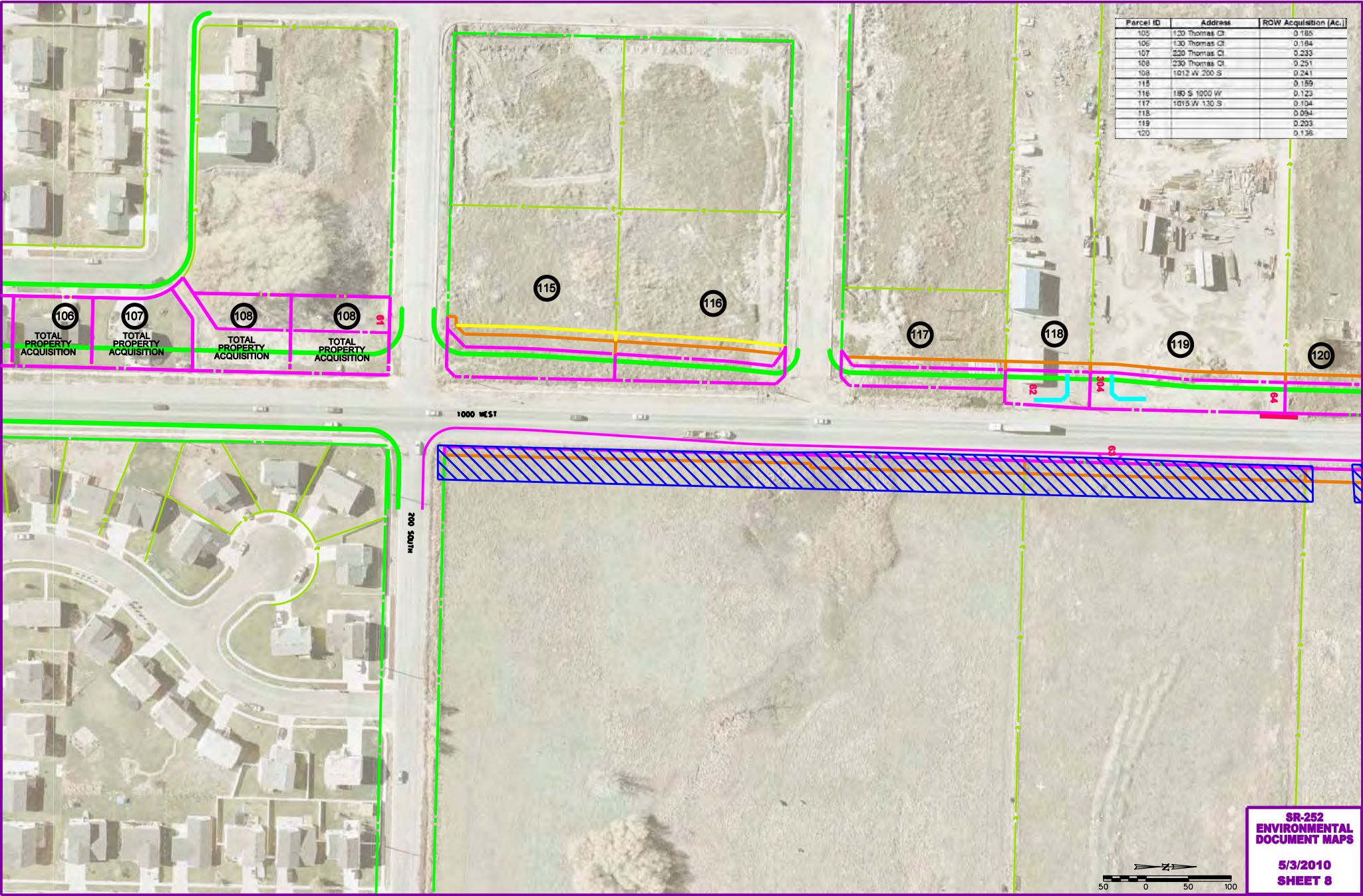


Parcel ID	Address	ROW Acquisition (Ac.)
73	988 W Three Point Ave	0.000
78	1015 W 500 S	0.290
77	1041 W 500 S	0.058
124	488 Oakwood Ct	0.017
79	478 Oakwood Ct	0.216
80	466 Oakwood Ct	0.213
81	458 Oakwood Ct	0.203
99	1023 W Three Point Ave	0.201
100	432 Oak Pl	0.198
101	424 Oak Pl	0.233
125	406 Oak Pl	0.020
102	1014 W 350 S	0.698
103	1015 W 350 S	0.898
104	110 Thomas Ct	0.256
105	120 Thomas Ct	0.185

SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

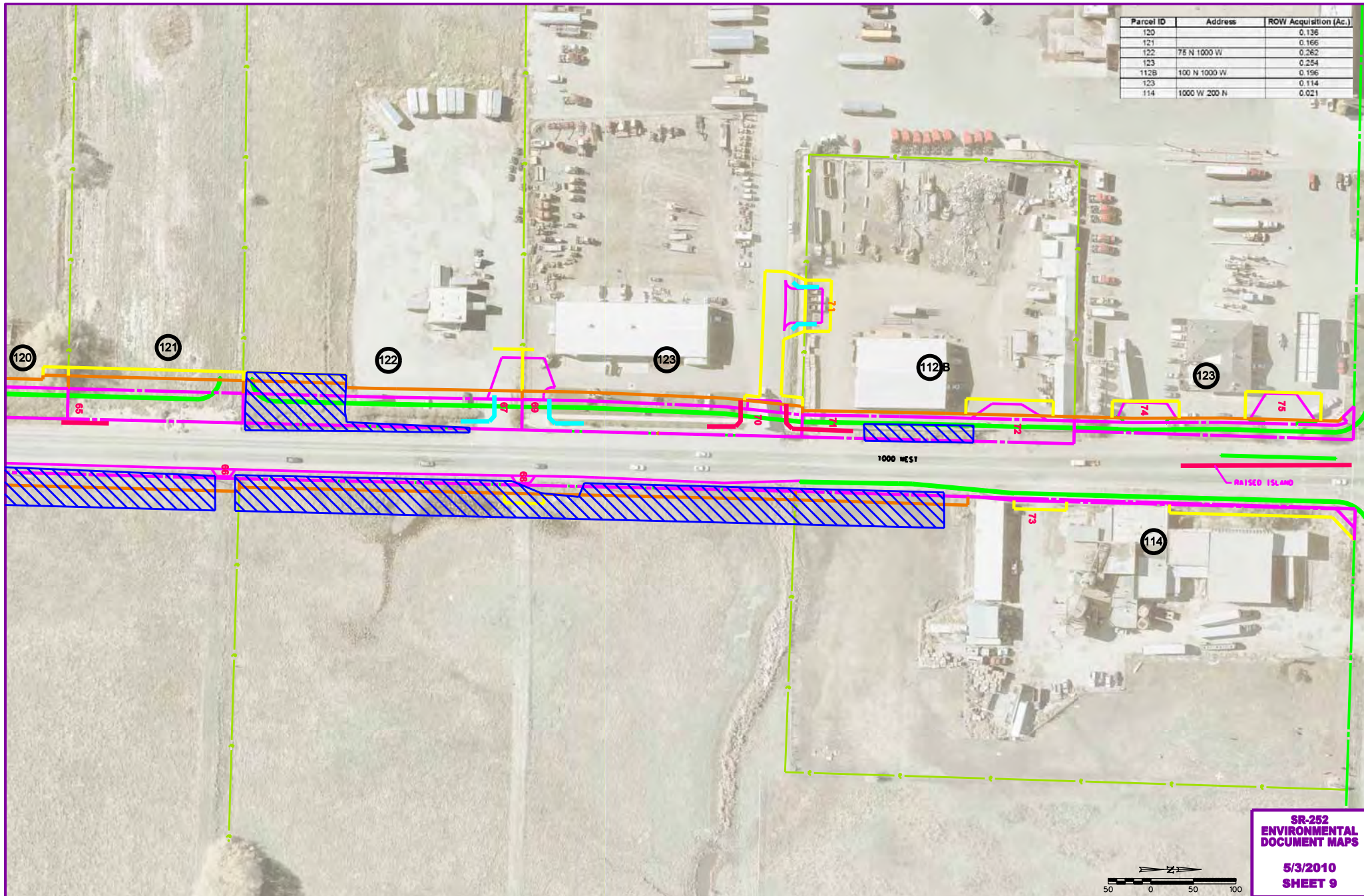
5/3/2010  
SHEET 7







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121		0.166
122	75 N 1000 W	0.262
123		0.254
112B	100 N 1000 W	0.196
123		0.114
114	1000 W 200 N	0.021

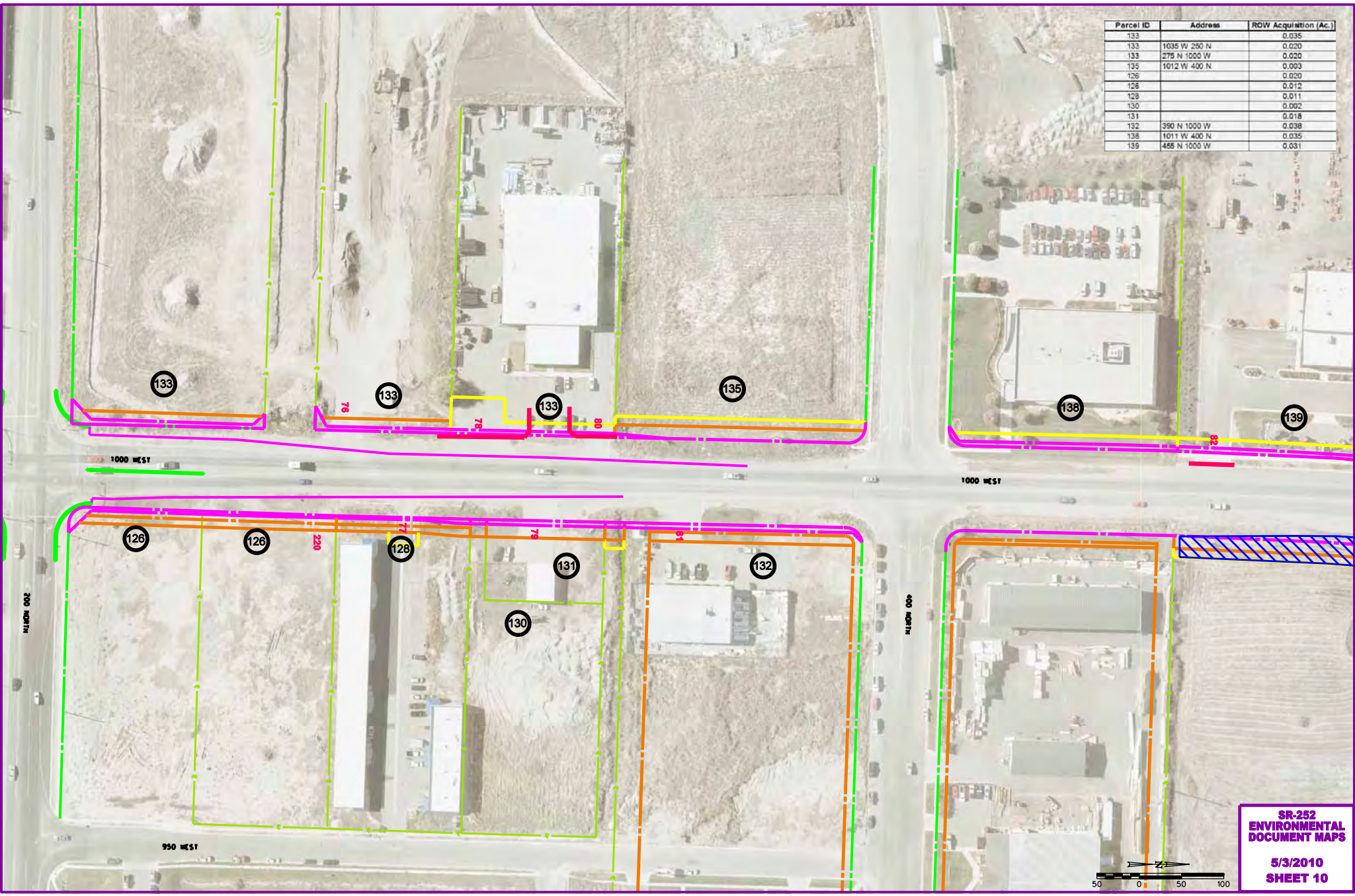


SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

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SHEET 9

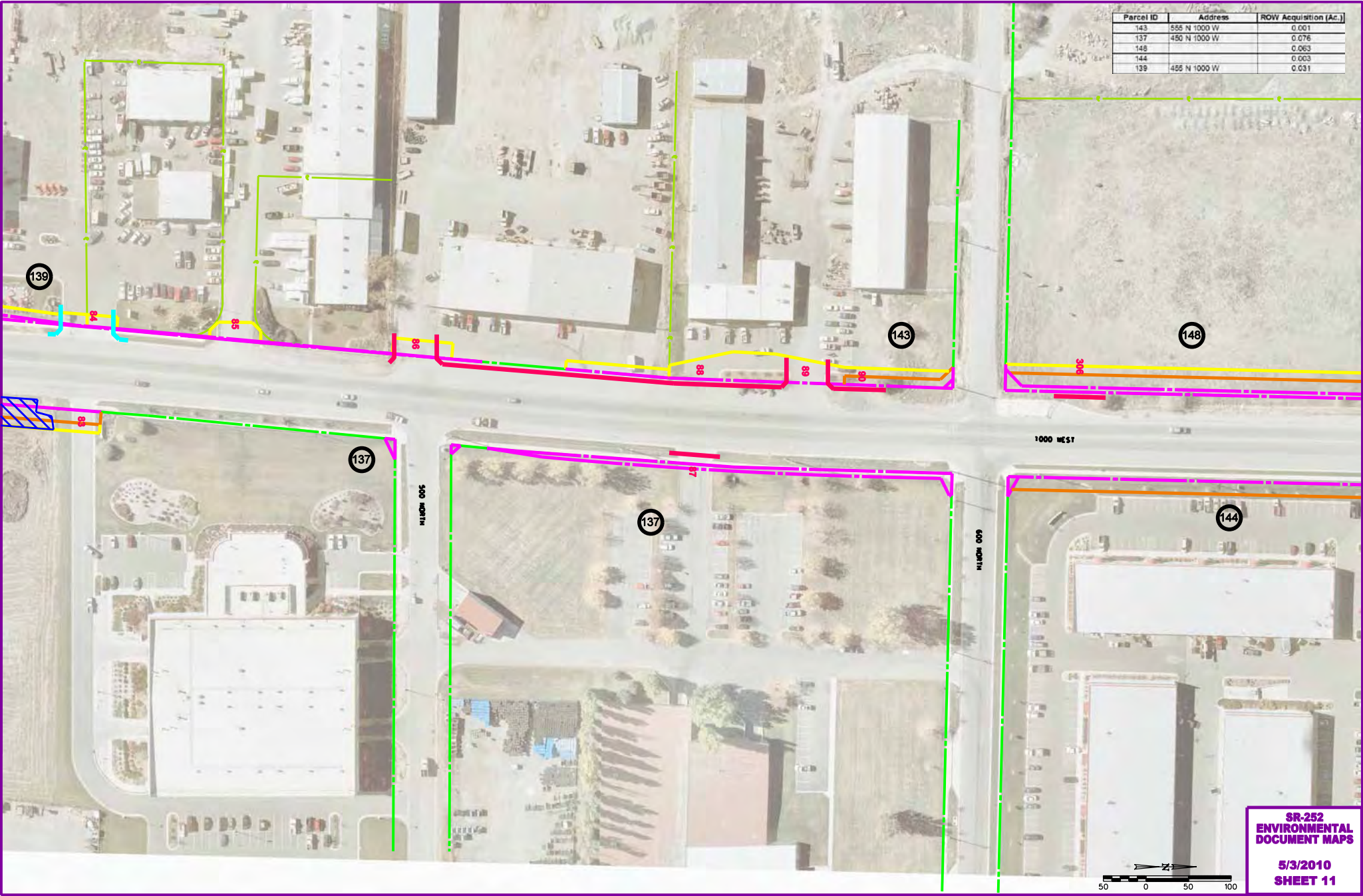


Parcel ID	Address	ROW Acquisition (Ac.)
133		0.035
133	1035 W 250 N	0.020
133	275 N 1000 W	0.020
135	1012 W 400 N	0.003
126		0.020
128		0.012
128		0.011
130		0.002
131		0.018
132	350 N 1000 W	0.038
138	1011 W 400 N	0.035
139	455 N 1000 W	0.031





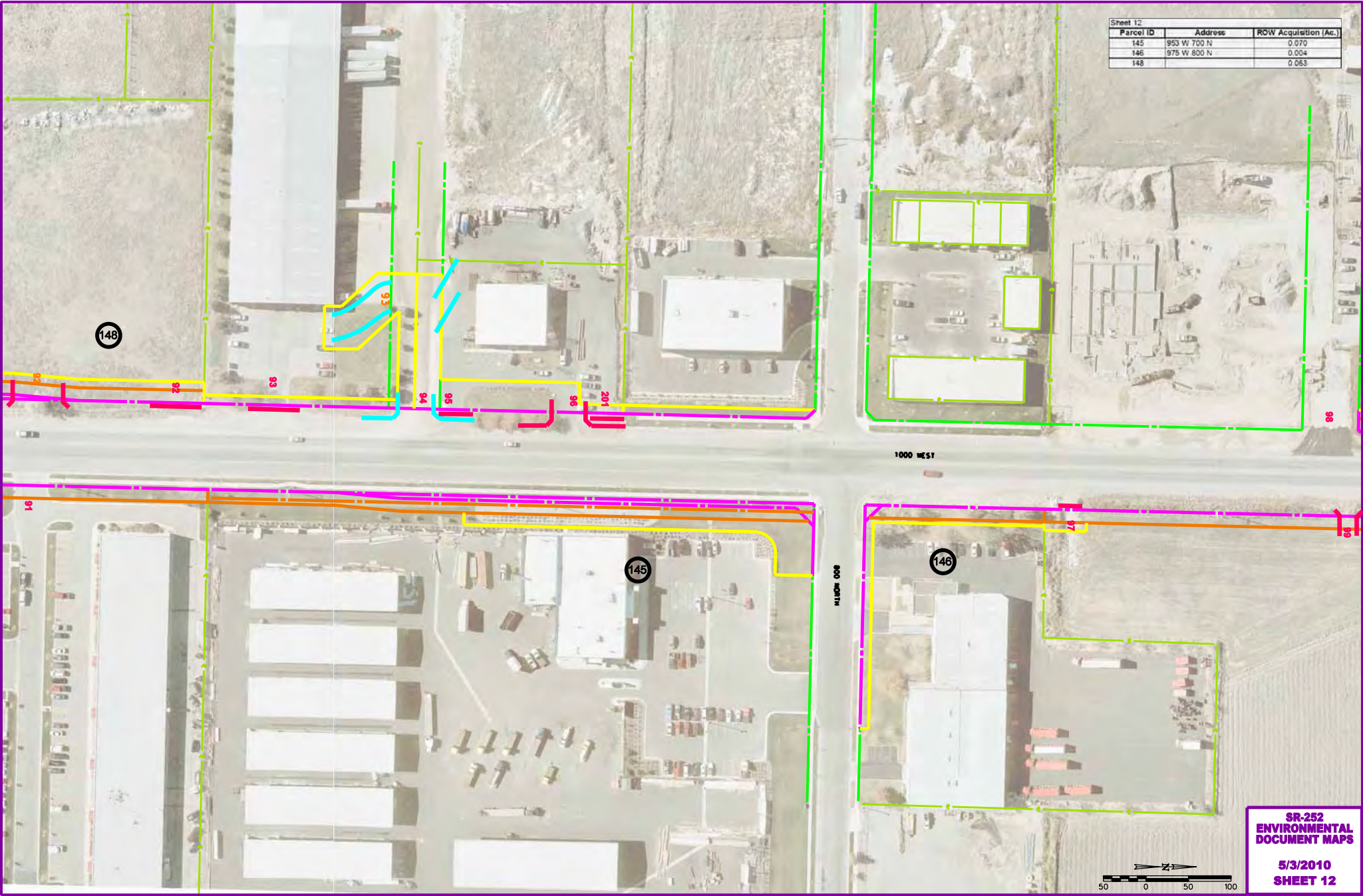
Parcel ID	Address	ROW Acquisition (Ac.)
143	555 N 1000 W	0.001
137	450 N 1000 W	0.076
148		0.063
144		0.003
139	455 N 1000 W	0.031



SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

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SHEET 11



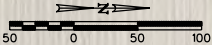


Sheet 12

Parcel ID	Address	ROW Acquisition (Ac.)
145	953 W 700 N	0.070
146	975 W 800 N	0.004
148		0.063

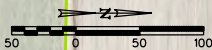
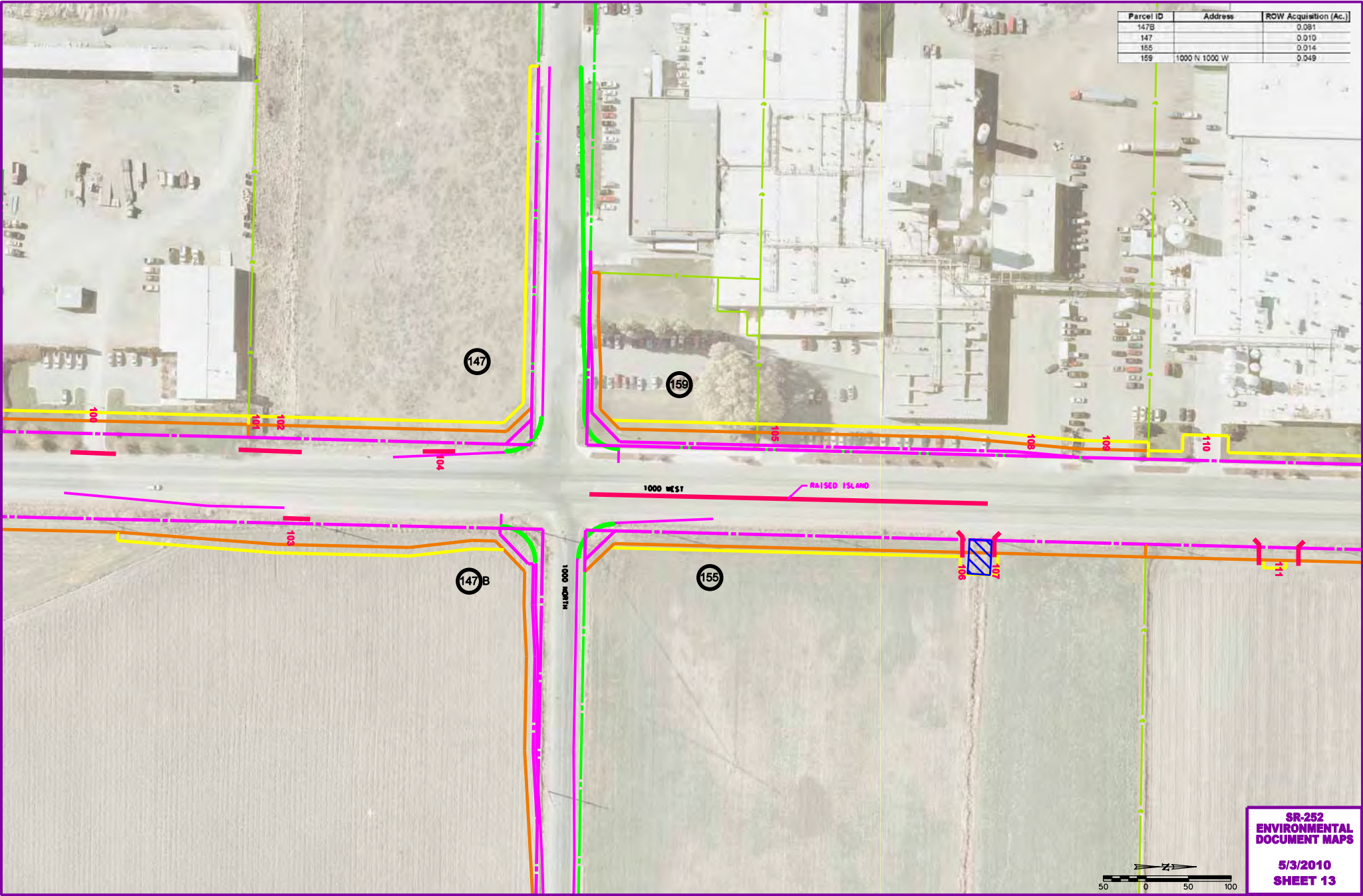
SR-252  
ENVIRONMENTAL  
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SHEET 12



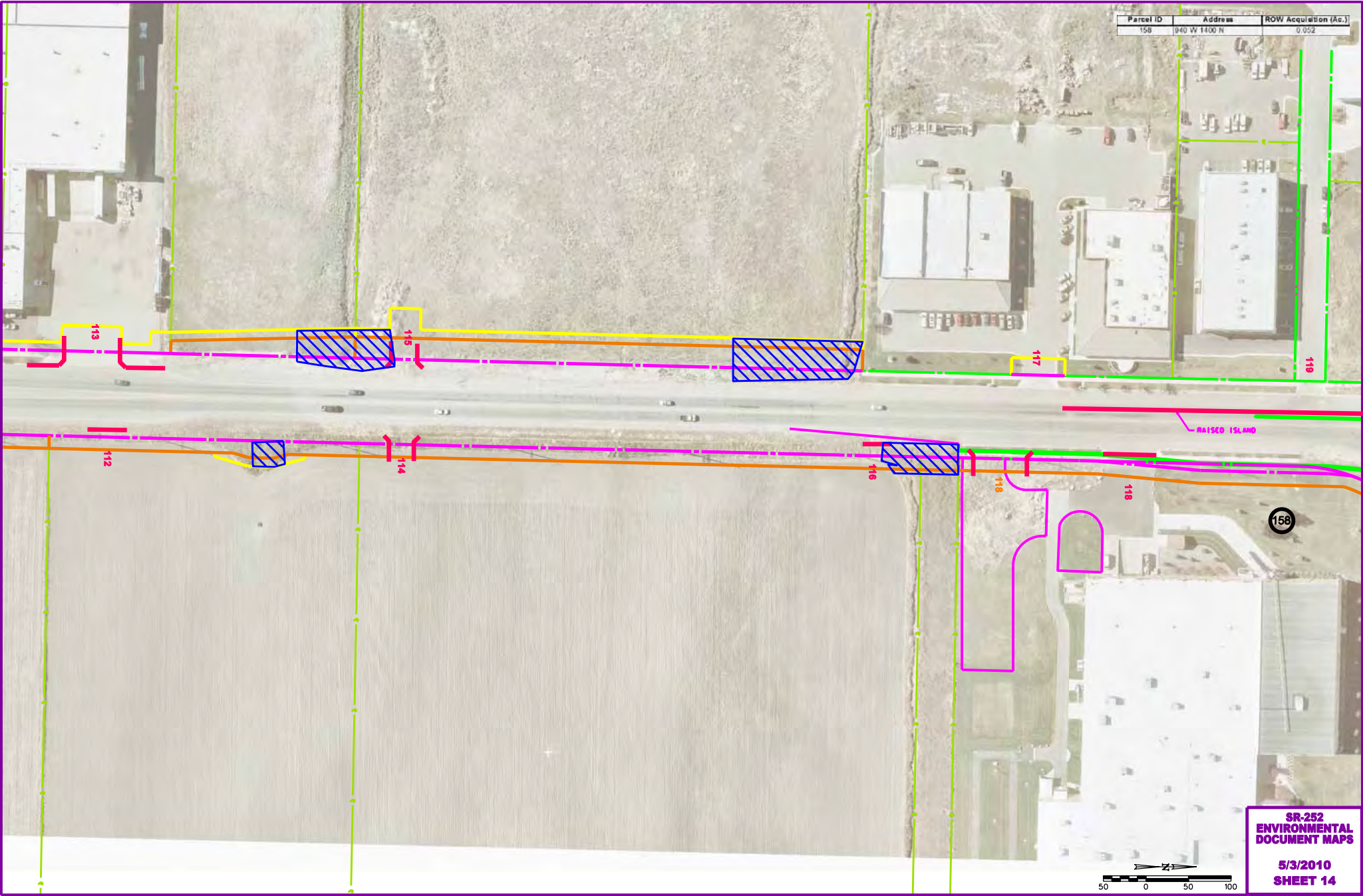


Parcel ID	Address	ROW Acquisition (Ac.)
147B		0.081
147		0.010
155		0.014
159	1000 N 1000 W	0.049





Parcel ID	Address	ROW Acquisition (Ac.)
158	940 W 1400 N	0.052

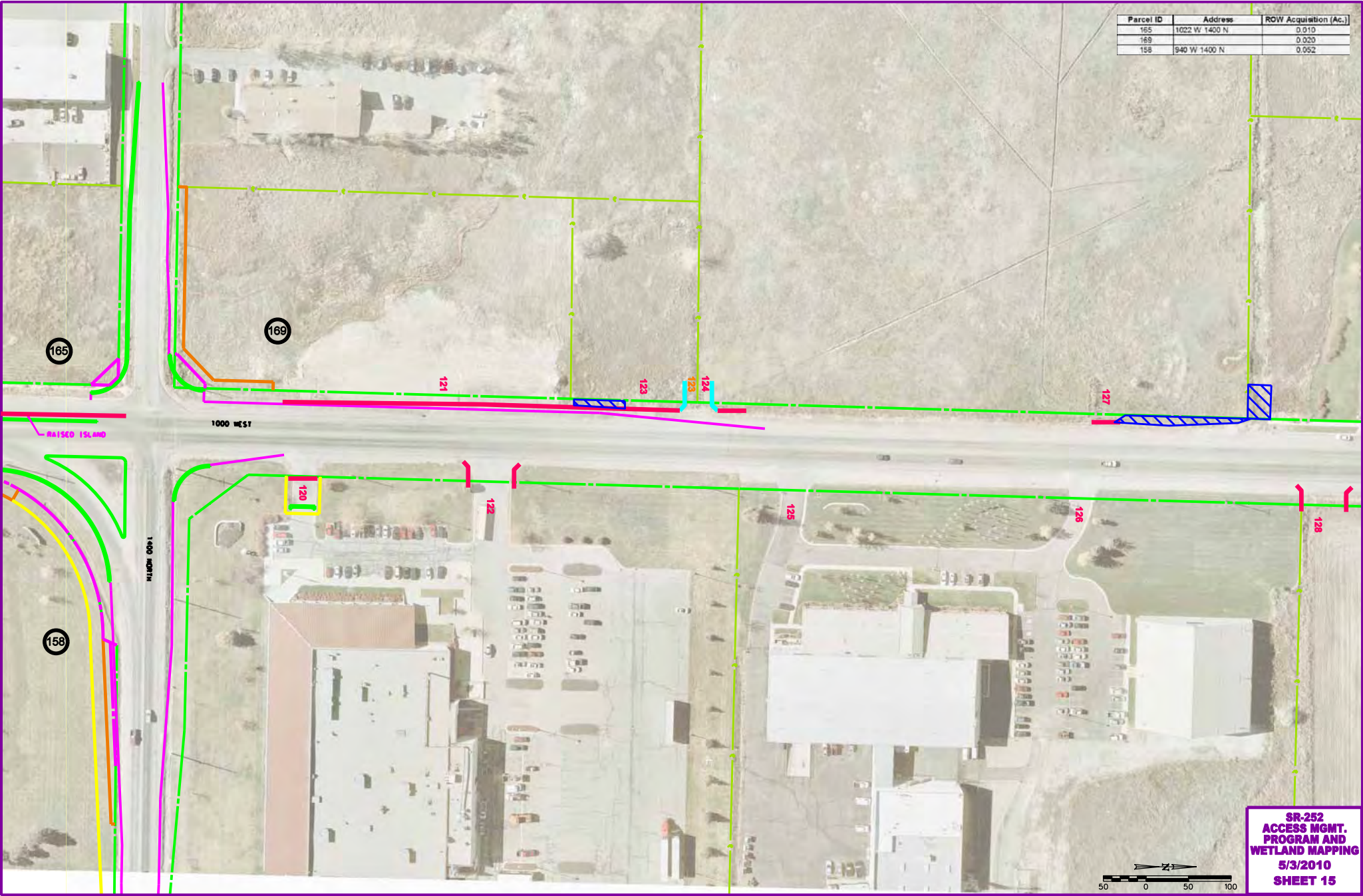


SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

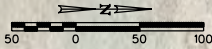
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SHEET 14



Parcel ID	Address	ROW Acquisition (Ac.)
165	1022 W 1400 N	0.010
169		0.020
158	940 W 1400 N	0.052

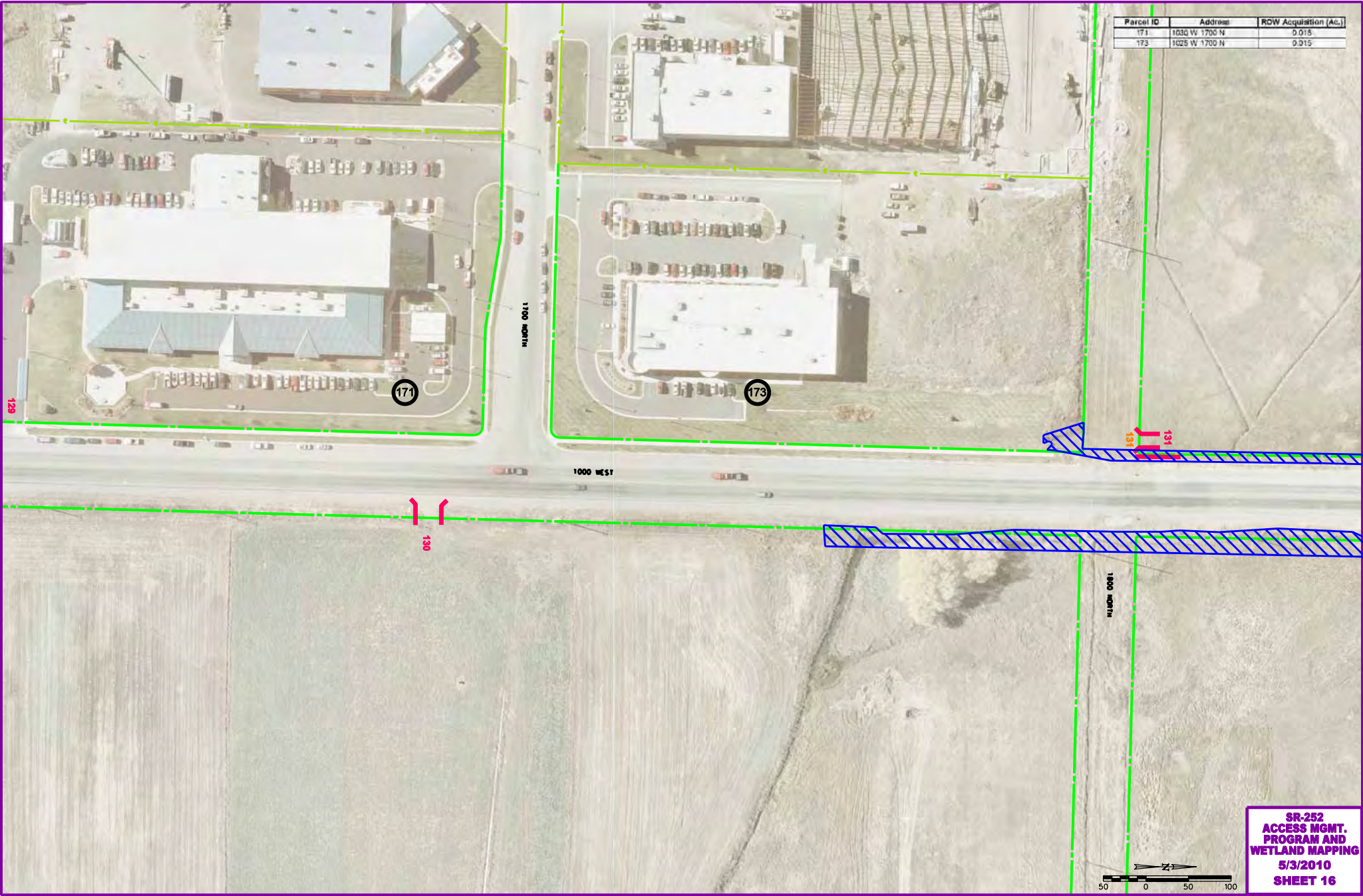


SR-252  
ACCESS MGMT.  
PROGRAM AND  
WETLAND MAPPING  
5/3/2010  
SHEET 15



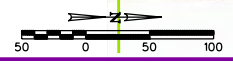
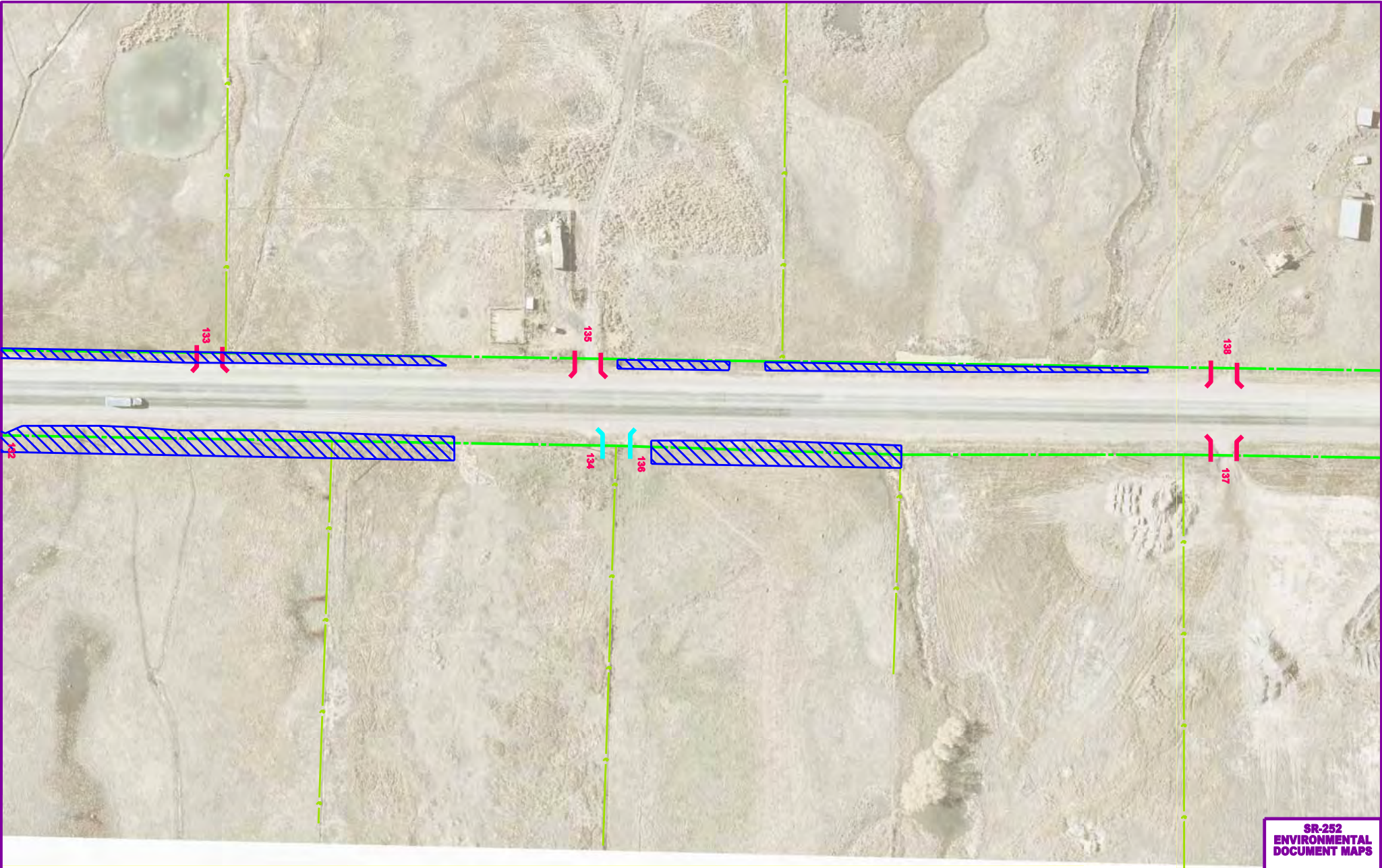


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173	1025 W 1700 N	0.015

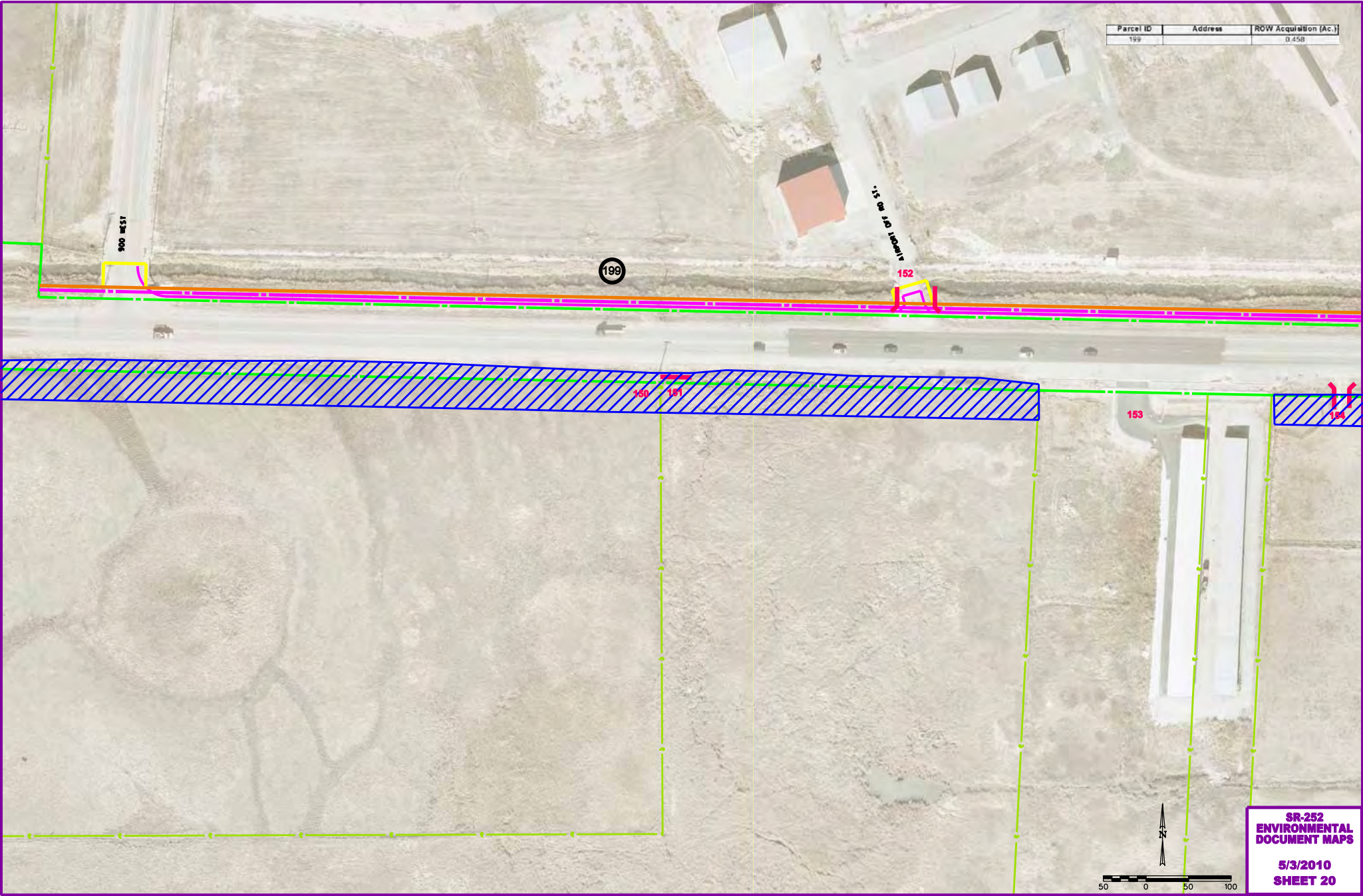


SR-252  
ACCESS MGMT.  
PROGRAM AND  
WETLAND MAPPING  
5/3/2010  
SHEET 16







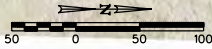
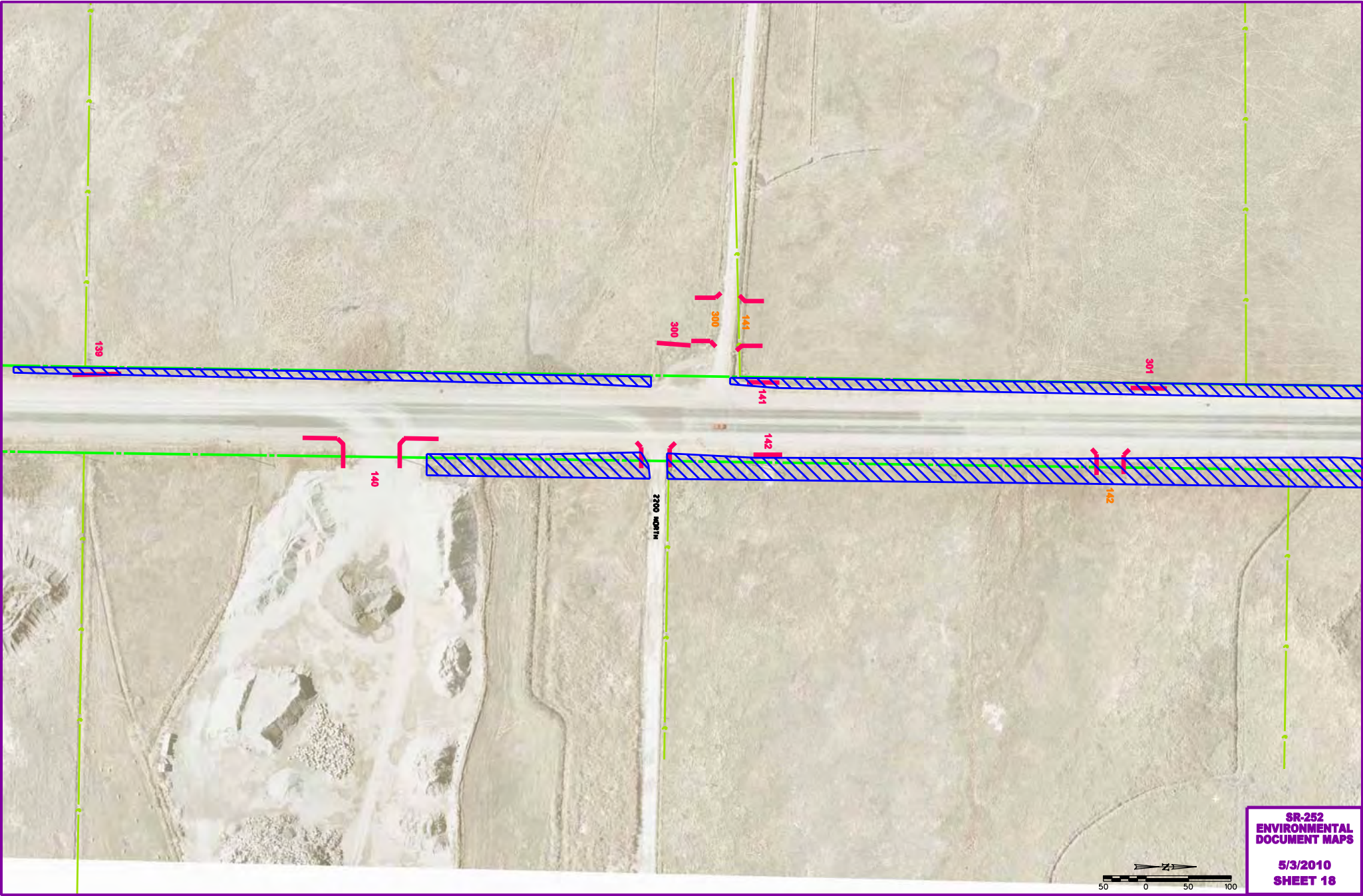


Parcel ID	Address	ROW Acquisition (Ac.)
199		0.458

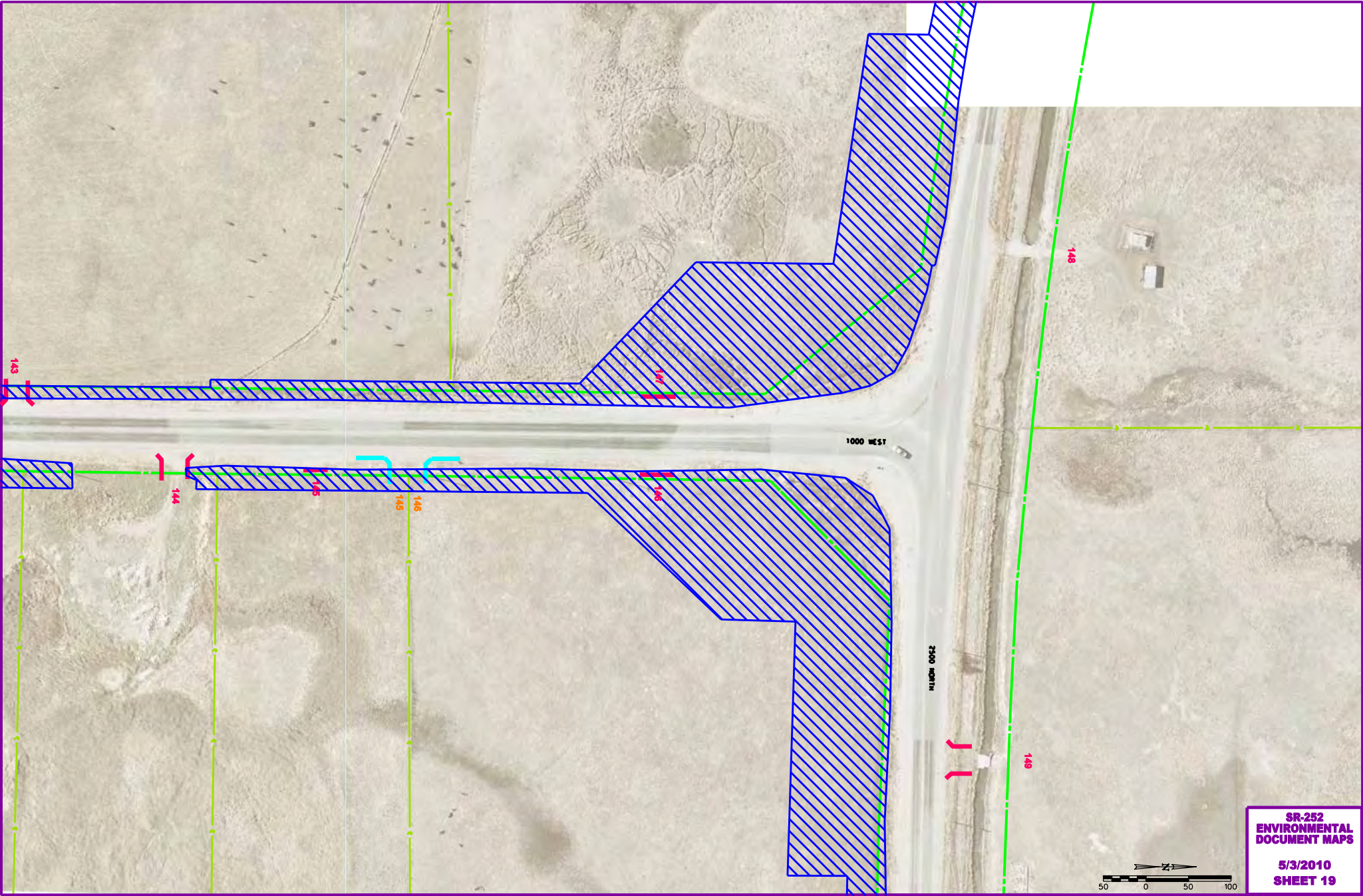
SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

5/3/2010  
SHEET 20





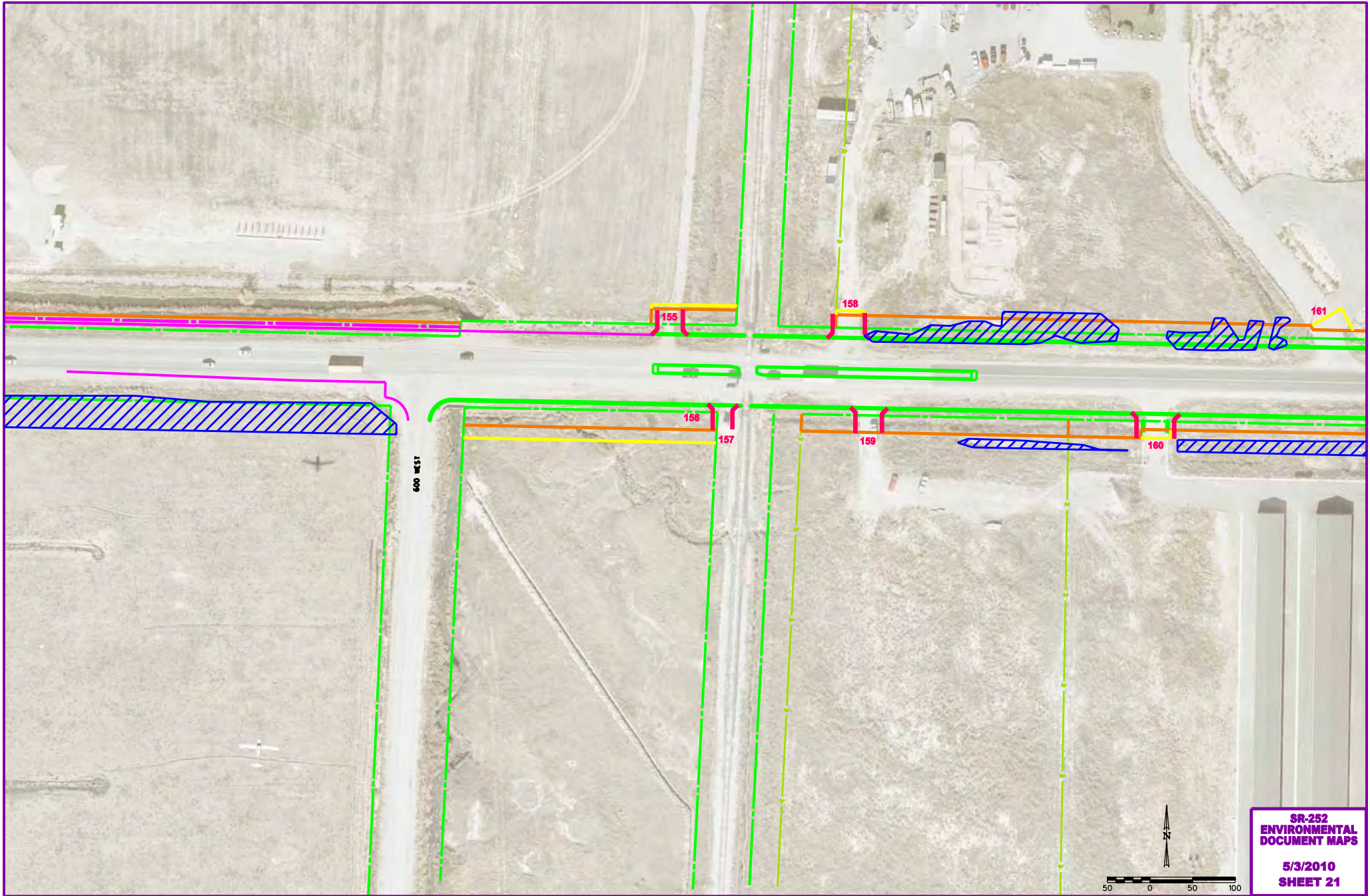




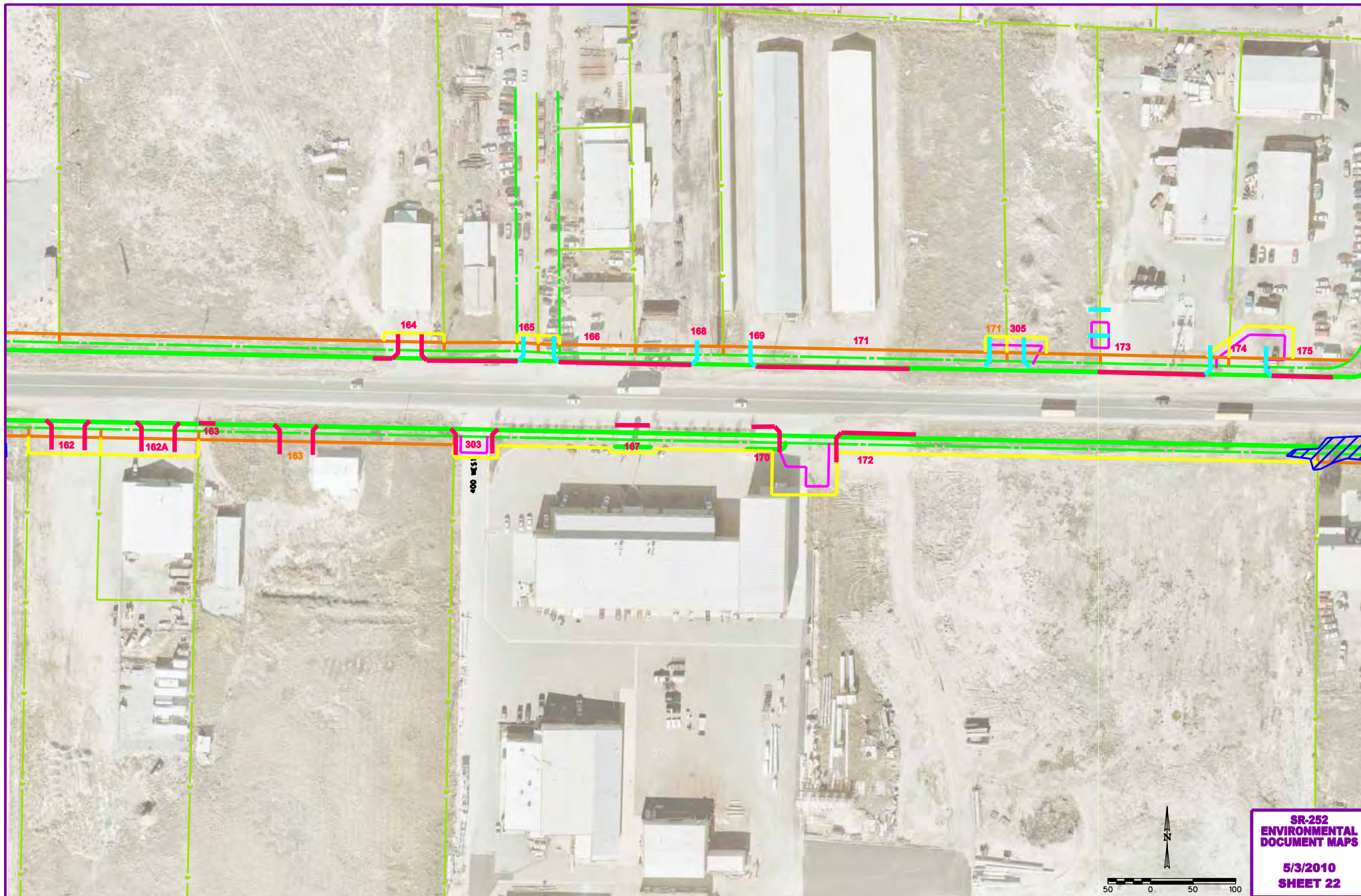
SR-252  
ENVIRONMENTAL  
DOCUMENT MAPS

5/3/2010  
SHEET 19



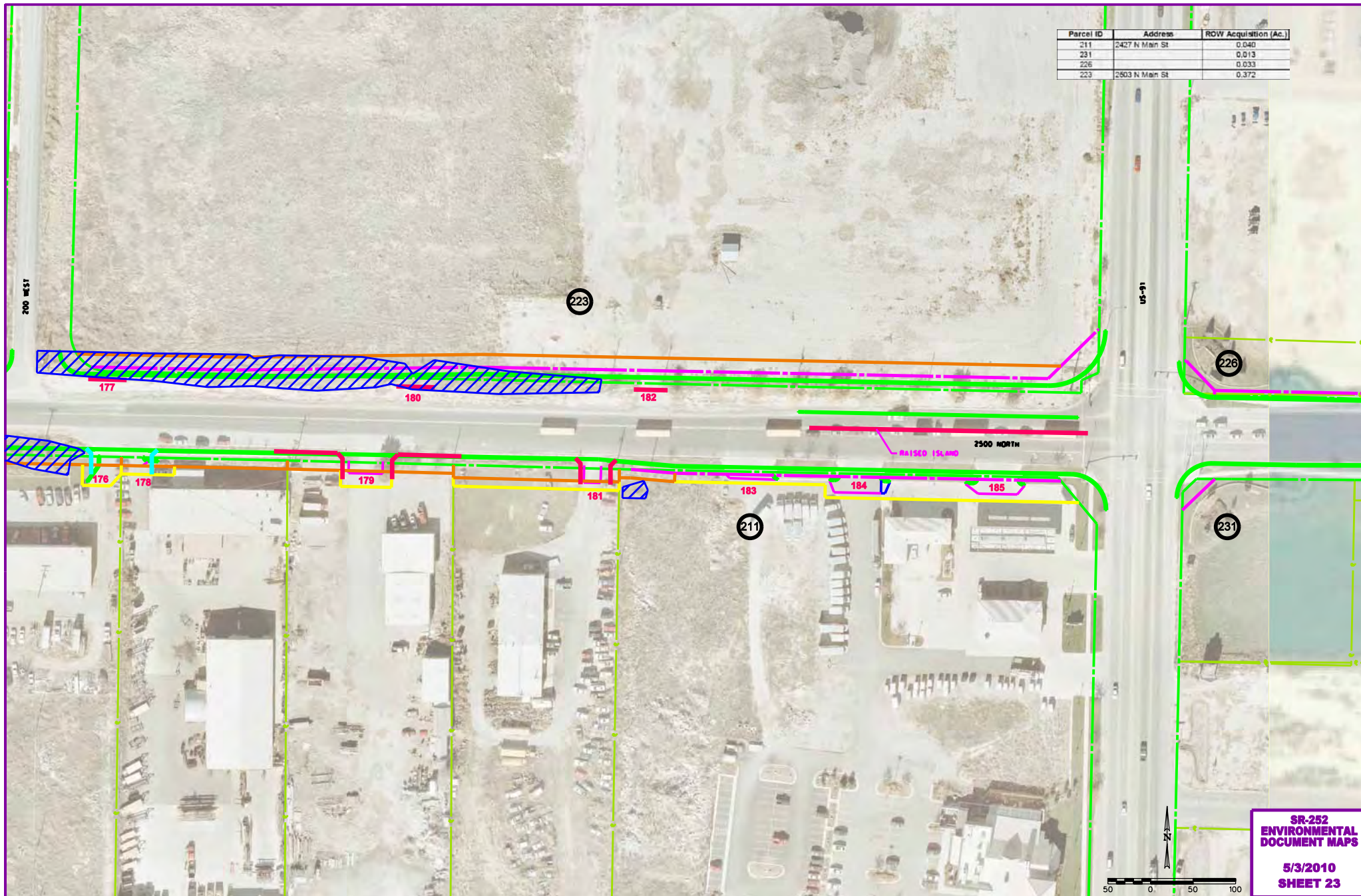








Parcel ID	Address	ROW Acquisition (Ac.)
211	2427 N Main St	0.040
231		0.013
226		0.033
223	2503 N Main St	0.372



**APPENDIX B**  
**PUBLIC INVOLVEMENT**  
**SUMMARY**



### I. Introduction

The public involvement activities for the Logan 10<sup>th</sup> West/SR 252 project were designed and implemented to engage project stakeholders and the general public in the design process. The primary goal was to develop understanding of the purpose and need and the Proposed Action. **Of particular note are the additional “special residential area meetings” (section i) and activities conducted with property owners in the residential section of the corridor to collaboratively develop a successful design solution for that most challenging section of the corridor.** The summary that follows describes the highlights of activities conducted, primary purpose for each event and highlights of the activity results. Detailed results from each activity are provided on the project web page ([www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)) . Results were also outlined and highlighted in public materials such as the newsletters.

### II. Activities Summary and Results Highlights

#### a. Individual Property/Business Owner Site Visits – April 2008 through September 2009

**Description:** Over 125 individual site visits were conducted by the design team with property owners and business operators to explain project status and understand individual property issues to be considered in the design process. Issues addressed included driveway approaches, right of way, wetland conditions, existing infrastructure, business operational needs and development plans.

**Results Highlights:** Results of these visits were used in the design development .

#### b. Scoping Meeting – May 2008

**Description:** Technical/facilitated discussion among design team members, affected agencies and organizations and UDOT to overview project issues, establish project parameters and preliminary goals. Attendance – 27 representatives from UDOT, consultant design team, Logan City and Cache Metropolitan Planning Organization (CMPO)

**Results Highlights:**

- Primary preliminary project goals; safety for pedestrians and vehicles, decreased congestion, increased capacity and access management to maintain optimum future access
- Key issues to address;
  - Environmental - Water/wetlands, social impacts to residential community, adjacent historic properties, nearby recreation properties. The most challenging issue to address is wetlands.
  - Asphalt conditions assessed – may affect construction phasing

- Drainage and irrigation – must be designed to eliminate roadway runoff and maintain operation of system – need coordination with Logan City and local Irrigation companies
- Utilities – many power poles may need to be moved – Need coordination with Logan City, Questar and Rocky Mtn. Power
- Traffic – Traffic projections show eventual need for five lanes throughout the corridor to maintain acceptable Level Of Service (LOS) through the 2030 design year. Sections on the south end of the project (200 North, south to US-91) and on 2500 North, from 600 West to US-91 will fail within the design year, if improvements are not made. The large majority of traffic on 10<sup>th</sup> West is local traffic.
- Intersections – improvements as warranted and according to the UDOT/Logan City Corridor Agreement. Key intersections for consideration are US 91/2500 North, 1400 North/10<sup>th</sup> West, 1000 North/10<sup>th</sup> West, 200 North/10<sup>th</sup> West, 200 South/10<sup>th</sup> West, 600 South/10<sup>th</sup> West, US 91/10<sup>th</sup> West.
- Initial design comments – Evaluate a five lane section throughout and organize project phasing to prioritize and construct lane capacity and improvements as needed to meet capacity and operational needs. Minimize right-of-way impacts wherever feasible, especially through the residential section. This may require some Design Exceptions. Comply with UDOT/Logan City Corridor Agreement. Provide environmental clearances /documentation of the full width needed for complete roadway build out and acquire right-of-way now for current and future needs

### c. Technical Advisory Committee (TAC) Meetings

**Description:** The TAC consisted of 28 representatives from Logan City, Cache County, UDOT, U.S. Army Corps of Engineers (USACE), adjacent neighborhood associations, Woodruff Elementary School PTA, North Logan City, local businesses, Logan City Airport, citizens, Cache County Chamber of Commerce, Cache Valley Transit, Logan City Police, Logan School District, Utah Division of Water Right, Logan Area Bike Committee and the Corridor Access Committee. The purpose of the TAC was to provide technical input during the design process and develop consensus support for the final design. The TAC met five times during the design process.

#### **Meeting Purpose and Results Highlights:**

- TAC Mtg #1 - April 2008 – to introduce the project and gather initial input for consideration in the design. 24 attendees
  - Key input
    - Corridor goals- safety, improve traffic flow, better turning opportunity, improve pedestrian safety in residential area, remember 10<sup>th</sup> West desired function as a by-pass to Main Street and extensive use by trucking
    - Design – consider long-term designation of the corridor as a “Category 4” Access controlled facility
    - Consider tradeoffs between pedestrian and bike needs, wider shoulders, planter / park strips, sidewalk width, aesthetics, additional travel lanes, right of way impacts, etc.
    - Plan for Public mtg #1 – gather issues and concerns, more general than specific, blend technical and public issues, ask “What are the public’s goals for the corridor?” , etc.



- TAC Mtg #2 - September 2008 – To introduce and gather input for refinement of the conceptual design. 21 attendees
  - Key input
    - General, but not complete support for the conceptual design elements presented
    - Consider options for additional bike, bus facilities, expanded mass-transit, non-vehicle use
    - Support for aesthetic improvements
    - Consider buying additional right of way now to develop full-width roadway, including aesthetic improvements to complement surrounding development
    - Incorporate access management plans into future LOS projections
    - Build safety improvements first, then roadway capacity improvements
    - Utilize context sensitive design approach
- TAC Mtg #3 - April 2009 – to present the updated conceptual design and gather input for refinement into the proposed design. 20 attendees
  - Key input
    - Commercial sections - Consider buffer and landscaping, sidewalks and bus stops in the commercial areas
    - Residential section
      - Updated design concept is an improvement, but it still may not address resident's concerns for pedestrian safety/adequate buffer space and aesthetics
      - Outstanding design challenges include maintaining minimal right of way impact through the residential area, buffer/park strip/sidewalk maintenance concerns, snow removal, fencing and barrier use through the residential area, historic property impacts, wetland constraints, the Agricultural Preservation Zone, speed limits, and a pedestrian crossing at Three Point Ave.
      - Possible acquisition of "17 homes" on the west side of 10<sup>th</sup> between 200 South and 600 South was raised by a neighborhood group and endorsed by the Logan City Council – although this would allow for a wider cross section and address many neighborhood concerns, this is a high cost to the project, high probability that some of the homeowners may object. TAC members agreed that UDOT should investigate this option directly with the affected 17 homeowners.
      - Consider "off-10<sup>th</sup>" ped routes and traffic calming measures
    - Undeveloped section – expressed a desire to include aesthetics and sidewalks in this section as it develops
    - Costs and phasing
      - Initial phase of improvements should include from US 91 to 200 North
- TAC Mtg #4 – June 2009 - To present and gather input on the recommended design for improvements to 10th West/SR- 252. 23 attendees
  - Key input
    - With specific comments as noted in the meeting results document, the TAC reached strong consensus for the recommended (proposed) design, including all proposed cross sections and the 124 foot plus frontage road section between 200 South and 600 South

- TAC Mtg #5 – August 2009 – to present the refined proposed design and discuss construction approaches, Total Management Planning, schedule and phasing. 17 attendees, plus the design team.
  - Key input
    - Proposed design – strong support for the proposed design with the following comments:
      - Thomas Court parking – city representatives agreed to have the design team contact the residents on the north side of the street at the north end of Thomas Court to determine their preference for changes to expand the street width to support parking on both sides of the street.
      - Redevelopment of buffer space between 10<sup>th</sup> West and the proposed frontage road – No support from the TAC for redevelopment of this area. Prefer to develop and retain as landscaped open space. Design team will coordinate with City of Logan to determine final /acceptable landscaping elements and design.
      - Cross section width – some interest in expanding the undeveloped cross section to 124 foot – agreed to retain as proposed and seek future opportunity with developers to widen the cross section to include wider buffer areas.
      - Appreciation to UDOT – several members of the TAC expressed appreciation to UDOT and the design team for listening to the needs of area residents in developing the proposed design, especially the wider cross section and frontage road through the residential area
      - Speed limits – desire to retain existing speed limits on the corridor
      - Signals – prefer the signals at 10<sup>th</sup> North and 14<sup>th</sup> North be installed early in the project
      - Access Management – pursue aggressive access management / consolidation of accesses – request assistance from Logan City and the CMPO if needed
      - Transportation Management Planning – TMP – avoid work in residential area during school season, faster done the better, early notifications to affected property owners are encouraged

#### d. Local Government (LG) Meetings

**Description:** Local government meetings involved a mix of elected officials and staff representatives of all affected local governments, including Logan City, North Logan, Cache County and Cache County MPO. The purpose of these sessions was to present project information and gather input that characterized the perspective of the affected political subdivisions regarding the project and proposed designs. The Local government representatives met three times and were invited to attend the fourth and fifth TAC meetings.

**Meeting Purpose and Results Highlights:**

- LG Mtg #1 - May 2008 – to introduce the project and gather initial input for consideration in developing the project purpose and need, goals and related issues for consideration in the design. 11 attendees

- Key input – Project goals; make the corridor attractive to move traffic off Main Street, enhance access management, incorporate future airport expansion plans, focus on the section between 200 North and US-89/91, improve pavement on 2500 North, follow the Corridor Agreement between UDOT and the City of Logan (and North Logan) and work on access/driveway improvements/modifications to improve safety where feasible
- Key input – Outstanding issues; safety concerns and improvements should be on the “front burner”, airport road connection is necessary, the narrow section through the residential area is a bottleneck in traffic, through lanes are critical for trucking use, the finished corridor should be a uniform width, biking and walking are important for safety and the ability for pedestrians, bikes and cars to co-exist, make 10th West a “desirable” alternate route and focus on the south end (of 10th West) to accomplish this goal
- LG Mtg #2 - September 2008 – to present the conceptual design and gather input – 11 attendees
  - Key input – Design Concept; general support for the concept design of five lanes as presented, but some residents may be displeased with the impacts
  - Key input – Outstanding issues; right of way needs/impacts, bike/pedestrian needs, pedestrian safety and mid-block crossings, noise walls may be required, additional safety measures in the residential area may be needed, focus on pedestrian facilities and crossings, consider center barriers
  - Key input – Related issues; consider North Logan City planned improvements to 200 West, confirm water rights ownership, suggest increasing the base bid to include roadway improvements up to 400 North, investigate possibilities for “off-corridor” pedestrian routes through the residential area
- LG Mtg #3 - April 2009 – to present the updated conceptual design and gather input for refinement into the proposed design – 8 attendees (2 from local government)
  - Key input – Updated Design Concept; continued general support for the current design concept of five lanes and a possible wider roadway section through the residential area between 600 South and 200 South
  - Key input – Outstanding issues; Logan City recognizes they will have to maintain any buffer area where homes back up to 10th West, support the creation of a citizen-based design group to develop recommendations for design of buffer/parkstrip/sidewalk pedestrian areas involving a possible wider roadway section between 600 South and 200 South

#### e. Neighborhood Council (NC) Representative Meetings

**Description:** Three neighborhood council areas are adjacent to the corridor; Ellis, Bridger and Woodruff. Of these, the Bridger and Woodruff areas have the most significant potential impact due to the project. All three representatives were invited to participate on the TAC and specific coordination/input meetings were held with representatives at project introduction (April 2008) and at the initial concept design stage (October 2008). The Woodruff and Bridger representatives were also invited to participate in specific residential/neighborhood area planning sessions to develop and reach consensus on the proposed design for the residential area.

#### Results Highlights:

- NC Mtg #1 – April 2008 – to introduce the project and gather initial input for consideration in the design. 4 attendees
  - Key input; pedestrian safety in the residential area is critical, desire to include aesthetic enhancements, maintain existing vehicle speed limits, noise concerns, desire for wide park strips and concern for park strip maintenance and snow removal
- NC Mtg #2 – October 2008 – to present and gather input on the conceptual design. 6 attendees
  - Key input; continued concern about narrow section in the residential area between 600 South and 200 South and the resulting pedestrian proximity to 10th West, evaluate wider sidewalks, consider a pedestrian tunnel at 600 South, consider a “parkway” design concept for the entire corridor, apply more landscaping to the entire corridor, support development of “off-10th” pedestrian routes, concerned about snow removal on sidewalks to allow pedestrian use in winter, consider opening of 12th West to provide an alternate traffic route from the residential area to 10th West

#### f. Woodruff School PTA Meetings

**Description:** Included three meetings with members of the Woodruff Elementary School PTA and other meeting attendees such as the Woodruff Elementary School principal, school board members and school superintendent to present project status and gather input.

**Results Highlights:**

- PTA Mtg #1 - May 2008 – to introduce the project and gather input for consideration in the design. 12 attendees
  - Key input; pedestrian safety in the Woodruff School area is critical (this is a walking school – no bus service), desire wide buffer/park strip areas, enhanced aesthetics, concerned about increased traffic and high vehicle speeds, crossing at Three Point Avenue is dangerous, desire to keep the signal at 600 South, lack of existing sidewalk connectivity, consider sound walls, organize pedestrian routes that would enable pedestrians to avoid 10th West, understand the need to balance lanes/capacity needs with pedestrian safety
- PTA Mtg #2 - October 2008 – to present and gather input on the conceptual design. 9 attendees
  - Key input; concerned about narrow pedestrian features, including lack of park strip and narrow sidewalks, remaining safety concerns for pedestrian crossing at Three Point and 600 South, consider overpasses, consider a 3 foot raised concrete barrier between 10th West and the sidewalk, maintain existing speed limits, “off-10th” pedestrian routes are a good idea, but challenging to implement, education and training of kids on pedestrian safety is important and needed, “put as much room as possible between 10th West and the sidewalk”
- PTA Mtg #3 - July 2009 – to present and gather input on the proposed design. 6 attendees
  - Key input; strong support for the proposed design, especially the proposed 124 foot cross section with frontage road between 200 South and 600 South, appreciate that UDOT and the design team listened and addressed as many of their concerns as feasible.

## g. Property/Business Owner Section Meeting (PBO)

**Description:** A property/business owner meeting was held in two group sessions with affected property/business owners whose property or business is bordered by 10<sup>th</sup> West. Sessions were organized into two groups; 1) properties north of 200 North and 2) properties south of 200 North. Sessions were intended to provide opportunity to present and discuss specific design issues as they affect specific property and business operation and gather input for consideration in refinement of the design

### Results Highlights:

- PBO Mtg #1 - October 2008 – to present the initial concept design and gather input from business and property owners – 40 attendees (not including the design team)
  - Key input; general recognition that something needs to be done to improve the function of 10th West, suggest closing off some residential side streets to 10th West to reduce congestion and improve safety, concern for property impacts, pedestrian safety through the residential area is of critical importance, good support for the development of “off-10th” pedestrian routes, retain existing speed limits, retain the signal at 600 South, crossing at 10th West and Three Point Avenue is important but dangerous – desire a crossing structure of some type, many requests for barrier between vehicles and pedestrians, retain functioning driveways for current and future development.

## h. Public Meeting/Open Houses

**Description:** Three public open houses were designed to provide opportunity for participation by interested community residents and the general public to learn about the project, identify concerns and comment on conceptual and proposed designs.

- POH #1 - May 2008 – to introduce the project and identify issues and concerns for consideration in the design process. 93 attendees
  - Key input; Safety for pedestrians and bicyclists - very strong concern for safety for pedestrians and bicyclists, primarily in the residential section and near Woodruff Elementary School, desire to retain the signal at 600 South and existing speed limits through the residential zone and school zone
  - Key input; congestion – frequent delays on 10<sup>th</sup> West and through existing intersections, difficult access and turning movements on and off the corridor for trucks, lack of left turn protection and insufficient roadway capacity
  - Key input; drainage and irrigation – insufficient drainage control on 10<sup>th</sup> West and concern for maintenance/operation of existing irrigation systems
  - Key input; traffic noise – undesirable level of existing traffic noise and anticipated increase in noise due to increased traffic
  - Key input; desired improvements - wider sidewalks, wider buffer space, improved, intersection controls, additional road lanes, adequate turning lanes and sufficient access to neighborhoods and businesses
- POH #2 - October 2008 – to present and gather input on the conceptual design. 85 attendees
  - Key input; conceptual design general – lack of support for the concept design for a narrow roadway section through the residential area – other section concept plans seem to be acceptable as presented



- Key input; significant concern for pedestrian safety in the residential area and the decreased distance between vehicles and pedestrians due to the lack of a landscaping strip, strong desire for a pedestrian crossing at Three Point Avenue, good support to pursue “off 10<sup>th</sup>” pedestrian routes, including some volunteers to assist the Neighborhood Council representatives in evaluation with property owners, retain existing speed limits, traffic noise is a problem, general recognition that something needs to be done
- POH #3 - July 2009 – to present and gather input on the proposed design. 76 + attendees (some did not sign in)
  - Key input; proposed design – very strong support for the proposed design, especially the 124 foot cross section with frontage road between 200 South and 600 South
  - Key input; thanks for listening – many expressed appreciation to UDOT and the design team for making changes in the design that responded to key public and residential area concerns
  - Key input; remaining outstanding concerns
    - Frontage road connection at Thomas Court – concern about reduced pedestrian safety and noise resulting from the proposed routing of the north end of the frontage road through Thomas Court (to avoid existing wetlands) to 200 South
    - Signal at 200 South – strong desire to install a signal at 200 South as soon as possible to provide for safer pedestrian crossing of 10<sup>th</sup> West and accommodate increased vehicle traffic at/through that intersection especially with the development of the proposed frontage road
  - Key input; other significant input - maintenance of buffer areas, no support for redevelopment of the buffer areas, split opinion on noise walls and fencing, retain existing speed limits

## i. Special Residential Area Meetings

**Description:** Based on public input and the conflict between roadway needs and neighborhood concerns, the most challenging area of the corridor for which to develop a successful and publically supported design solution was the residential area. So important were the interests of property owners in this area in enhanced pedestrian and aesthetic features that homeowners from the west side of 10<sup>th</sup> West between 200 South and 600 South approached the Logan City Council to solicit their support in requesting that UDOT purchase their properties to allow for a wider cross section in this area that would support such enhancements.

Based on this interest and a request from the City of Logan, the design team planned and conducted a series of specific coordination, communication and planning/design work sessions with neighborhood residents. The objective of these collaborative sessions was to develop a design that supported the corridor purpose and need, satisfied the roadway operational needs and addressed the primary concerns of neighborhood residents. Prior to each of these meetings, notification and invitation to meetings was provided to affected property owners via a hand-delivered notice which included the date, time, location and purpose of the meetings.

## Communications / Meetings History

- City Council Presentation by interested neighborhood residents – the Ad-hoc Safety Committee, including homeowners from the west side of 10<sup>th</sup> West between 600 South and 200 South attended a Logan City Council meeting in December 2, 2008 to request support from the Logan City Council in the neighborhood resident's interest in having UDOT acquire the homes on the west side of 10<sup>th</sup> West between 600 South and 200 South to allow for a wider cross section to support enhanced pedestrian features and provide a larger buffer between the roadway and 10<sup>th</sup> West. The City of Logan subsequently sent a letter to UDOT on March 17, 2009 in support of the neighborhood resident's interests as described above. *Note that this was not a UDOT sponsored event, but is included in this summary to demonstrate that the initial idea of acquiring homes on the west side of 10<sup>th</sup> to allow for a wider cross section and enhanced pedestrian features / wider buffer, was started by the homeowners themselves and subsequently was supported by Logan City.*
- Ad-hoc Safety Committee Representative Meeting – March 2009 – to learn more about the interests of the “17 homeowners” on the west side of 10<sup>th</sup> West. This meeting followed the presentation by the Ad hoc committee and interested homeowners to the Logan City Council in December, 2008 to solicit the City Council's support to these property owner's interest in having UDOT purchase their homes to allow for a widened cross section with improved buffer space between 10<sup>th</sup> West and pedestrian facilities. 3 attendees
- Logan City Coordination Meeting – April 2009 – to inform city representatives that the project was restarted, discuss the current concept design and gather input on city-related issues. 6 attendees – three city council members and three design team members, including the UDOT Project Manager.
- West Side Residential Area “17 Homeowner's” Meeting #1 – May 2009 – to meet with the homeowners on the west side of 10<sup>th</sup> West between 200 South and 600 South to determine their level of interest and support in UDOT acquiring their properties to support a wider cross section. 20 attendees, plus design team – specific homeowner's from this area who attended included the following:
  - Frank Ives – 424 Oak Place
  - Fred Baugh – 1009 W 6<sup>th</sup> South and 575 S 10<sup>th</sup> West
  - Jed Merrill – 525 S 10<sup>th</sup> West
  - Angie Pritchett-Tremayne – 478 Oakwood Ct.
  - Mike and Michelle Bradshaw – 1023 3 Pt. Ave.
  - Kae Lynn and Paul Beecher – 575 South 1000 West and 1009 W 600 South
  - Naveed Kaymanesh – 1022 3 Pt. Ave.
  - Vasna Lam – 1014 West 350 South
  - Joe and Emily Higbee – 120 Thomas Ct.
  - Chris and Lisa Weems – 110 Thomas Ct.
  - Setha Seng – 1015 West 350 South
  - Valerie and Roger Gessel – 1015 West 500 South
  - Ben Buchannan – 432 Oak Pl.
- Residential Area Property Owner's Cross Sections Meeting - May 2009 – to present a range of wider cross-section alternatives for consideration by neighborhood area residents between 200 South and 800 South. Alternatives included; 1) narrow section that has been previously presented, 2) widened eastern alignment, 3) widened center alignment, 4) widened west alignment, and widened west alignment with frontage road. See the alignment alternatives descriptions in the environmental

document for more details. Invitations were sent to residents on both sides of 10<sup>th</sup> West between 200 South and 800 South. 34 attendees, plus design team. Specific attendees from the west side of 10<sup>th</sup> West between 600 South and 200 South included the following:

- Paul and Kaelynn Beecher – 1009 West 600 South
  - Jed and Rena Merrill – 525 South 10<sup>th</sup> West
  - Valerie Gessel – 1015 West 500 South
  - Rulen Duong – 220 West Thomas Ct.
  - Angie Pritchett-Tremayne – 478 Oakwood Ct.
  - Macario Islos – 580 South 1000 West
  - Koorosh Kaymanesh – 1022 West 3 Pt. Ave.
  - Paul Duree – 200 South 1000 West
  - Joe and Emily Higbee – 120 Thomas Ct.
  - Mike and Michelle Bradshaw – 1023 3 Pt. Ave.
- Citizen-based Design Committee Meeting – May 2009 – a work session with representatives of the design team, UDOT, City of Logan, Woodruff School PTA, Woodruff Neighborhood Council, neighborhood area residents (including Angie Pritchett-Tremayne, a homeowner from the west side of 10<sup>th</sup> West between 600 South and 200 South) and interested citizens to develop design concepts for the buffer area of the cross section between the curb and right of way boundary. Elements discussed included sidewalks, landscaping, buffer width, lighting, buffer and sidewalk maintenance and pedestrian travel routes. 13 attendees, plus the design team
- West Side Residential Area “17 Homeowner’s” Meeting #2 – June 2009 – a meeting specifically for property owners on the west side of 10<sup>th</sup> West between 200 South and 600 South to discuss and gather input regarding the preliminary proposed design for a 124 ft. cross section with frontage road that would require UDOT acquisition of their homes and properties and their relocation. 20 attendees, plus design team. Specific attendance by homeowners from the 17 homes that would be acquired by UDOT to implement a west side 124 foot alternative with a frontage road included the following:
    - Paul and Kaelynn Beecher– 1009 West 600 South
    - Roger and Valerie Gessel– 1015 West 500 South
    - Mike and Michelle Bradshaw– 1023 3 Pt. Ave.
    - Cathy Ives– 424 Oak Place
    - Ben Buchannan– 432 Oak Pl.
    - Joe and Emily Higbee– 120 Thomas Ct.
    - Paul Duree and Quent Casperson– 200 South 1000 West
    - Jed and Rena Merrill– 525 South 10<sup>th</sup> West
    - Tony and Karen Nielson – 130 Thomas Ct.
    - Naveed Kaymanesh– 1022 West 3 Pt. Ave.
    - Angie Pritchett-Tremayne– 478 Oakwood Ct.
- Individual Site Visits with affected property owners: *Individual site visits were also held with all of the affected “17 homeowners” who could not attend meetings to ensure they were fully informed of the proposed design and impacts to their property. Those visits were conducted on June 25<sup>th</sup> with the following property owners;*
    - Aura Acevedo – 465 Oakwood Ct.
    - Vasna Lam – 1014 West 350 South
    - Poonsin Chanthra Pannha – 220 Thomas Ct. - spoke to daughter at house and by phone to Poonsin later that day on Thursday

- Susan Anderson (non-resident owner) – spoke to by phone on July 6, 2009
- Additional visits on June 25<sup>th</sup> with owners who had attended previous meetings, but requested an additional on site visit included:
  - Frank Ives
  - Setha Seng
  - Chris and Lisa Weems

## **RESULTS HIGHLIGHTS FOR THE RECOMMENDED DESIGN ALTERNATIVE**

At the conclusion of these sessions, very strong support was provided by participating neighborhood residents and affected homeowners on both sides of 10<sup>th</sup> West for the proposed design through the neighborhood section of the corridor including the 124 foot cross section with a frontage road between 200 South and 600 South, which required removal and relocation of the homes on the west side of 10<sup>th</sup> West between 600 South and 200 South.

### **Specific homeowner positions on the issue are as follows:**

- Frank Ives – 424 Oak Place – supportive. Primary concern is replacing his home with one of comparable features
- Jed Merrill – 525 S 10<sup>th</sup> West – very supportive. Has expressed interest in having UDOT purchase his property beginning with the first property owner meeting
- Angie Pritchett-Tremayne – 478 Oakwood Ct. – supportive. Believes this is the best answer for the community. Primary concern is the value she and her husband will receive for their home and the ability to re-create their home setting in a new location.
- Mike and Michelle Bradshaw – 1023 3 Pt. Ave. – very supportive. They are planning to relocate elsewhere for another job, so this purchase and relocation by UDOT is a positive for them. They want the process to proceed as quickly as possible.
- Kae Lynn and Paul Beecher – 575 South 1000 West and 1009 W 600 South – supportive. Both their homes on 10<sup>th</sup> West are rentals. Would like to retain the portion of their property that is unneeded.
- Naveed Kaymanesh – 1022 3 Pt. Ave. – initially uncertain, but now are supportive
- Vasna Lam – 1014 West 350 South – supportive. Have expressed interest in selling their home since the first meeting
- Joe and Emily Higbee – 120 Thomas Ct. – supportive. Have expressed willingness to sell their property since the first meeting
- Chris and Lisa Weems – 110 Thomas Ct. – very supportive. Have expressed willingness to sell since the first meeting.
- Setha Seng – 1015 West 350 South – supportive. Believes this is the best answer for the community. Primary concern is the value he will receive for his home and the ability to replace it with one of comparable value and features.
- Valerie and Roger Gessel – 1015 West 500 South – supportive. Believe it is the best answer for the community. Primary concern is what value they will receive for their property.
- Ben Buchannan – 432 Oak Pl. – very supportive. Has expressed strong desire to sell their property since the first meeting
- Aura Acevedo – 465 Oakwood Ct. – accepting of the relocation.
- Poonsin Chanthra Pannha – 220 Thomas Ct. – accepting of the relocation

- Susan Anderson – approx. 540 South 1000 W. (non-resident owner) – spoke to by phone on July 6, 2009 – supportive. This is a rental property. Primary concern is what value they will receive for their property.

j. 1100 West Intersection Closure Neighborhood Meeting – August 2009

**Description:** A neighborhood resident meeting was held to present and gather comments regarding UDOT's proposed closure of the north side of the 1100 West/US 91 intersection. Invitations to the meeting were provided via flyers that were hand delivered to all homes and properties in the neighborhood area.

**Results Highlights:** 2 neighborhood attendees. Attendees listened to the presentation and justification for the proposed closure. Although they expressed some interest in keeping the intersection open to right in/right out only, they also cited similar safety concerns and experiences at this intersection such as dangerous turn movements on/off US- 91 from 1100 West, weaving on US- 91 for conflicting acceleration and deceleration movements, angle intersection visibility issues, etc. At the conclusion of the discussion, they were supportive of the closure. No formal comments were received.

k. Support Activities

1. Newsletters, Flyers and Post Cards – Seven project newsletters, one postcard and one flyer were developed during the project to provide current project information, invitation to public events and highlights of project conceptual and proposed design. Newsletters also included contact information and address for the project web site for further information on the project. Newsletters were mailed to all legal property owners on the corridor, hand delivered to corridor residents and provided at all project events.
2. Media Releases – Three media releases were developed and issued to the local media through UDOT Region One Public Involvement Manager to invite participation at each of the three public open houses, to provide brief project status and contact information for more information on the project.
3. Mailing List – A project mailing list was developed for periodic distribution of project materials such as newsletters, meeting invitations, etc. The list included all legal property owners bordering 10<sup>th</sup> West, key stakeholders, the TAC, Local Government and anyone who had signed up for the mailing list at site visits or public events.
4. Web Page – A project web site ([www.udot.utah.gov/tenthwest](http://www.udot.utah.gov/tenthwest)) was developed and maintained during the project. The web site included project background, supporting data, public and committee meeting schedules and results, concept design and proposed design information. Contact information for UDOT and the design team was also included for those desiring more information.
5. Toll Free Phone Number – A toll free phone number (1-888-583-6849) was also provided to the public involvement lead on the project for anyone desiring additional information on the project.
6. Translation – Language translation for non-English speaking area residents was offered at public events if requested
7. Miscellaneous communications – Miscellaneous communications via phone, e-mail and written communications also occurred between members of the design team and project



stakeholders, area residents, affected property/business owners and the general public as needed to meet project and public needs



**APPENDIX C**  
**AGENCY CORRESPONDENCE**



January 29, 2010

Mr. Charles Mace  
Utah Department of Transportation  
SR252 Project Manager  
166 West Southwell Street  
Ogden, Utah 84404-4194

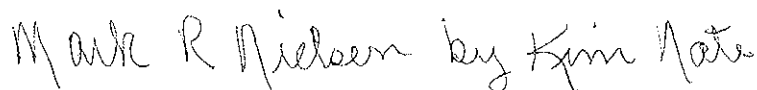
Dear Charles:

The City of Logan has appreciated the efforts of the Utah Department of Transportation in addressing the input from our citizens regarding the State Road 252 project. This letter is to document the items we have requested as part of the environmental study. The following City requests regarding the residential area between 600 South and 200 South near Woodruff Elementary school have been discussed during the project meetings and agreed upon between UDOT and the City of Logan.

1. The sidewalks through this area should be a minimum of 6 feet wide to facilitate snow removal using a pickup and plow.
2. The City of Logan will maintain the additional landscaping that will be created because of the frontage road through this area following landscape establishment by the contractor.
3. The City of Logan is willing to pay the costs above normal street lighting to install decorative lights along this area.

If you have any questions regarding these requests, please contact me at 435-716-9151. We look forward to a continued partnership as this project moves ahead.

Sincerely,



Mark R. Nielsen, P.E.  
Public Works Director

MRN:krm





JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Utah Geological Survey

RICHARD C. ALLIS  
*State Geologist/Division Director*

APR 12 2008

April 10, 2008

Wendy Simmons Johnson  
Sagebrush Consultants  
3670 Quincy Avenue, Suite 203  
Ogden UT 84403

RE: Paleontological File Search and Recommendations for the 1000 West Project, Logan,  
Cache County, Utah  
U.C.A. 63-73-19 compliance; literature search for paleontological specimens or sites

Dear Wendy:

I have conducted a paleontological file search for the 1000 West Project in Logan in response to your email of April 10, 2008. This project qualifies for treatment under the UDOT/UGS executed Memorandum of Understanding.

There are no paleontological localities recorded in this project area. Surficial deposits in this project area are mapped as Quaternary alluvium (Qay) and Lake Bonneville shoreline sand and gravel deposits (Qltg, Qlts). The Quaternary alluvium has a low potential for yielding significant fossil localities. However, Lake Bonneville have the potential for yielding significant vertebrate fossil localities, so please be aware of possible impacts to paleontological resources if they are disturbed as a result of construction activities. If any fossils are found, an evaluation by a professional paleontologist should be conducted. Otherwise, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden  
Paleontological Assistant



United States Department of Agriculture



Natural Resources Conservation Service  
125 South State Street, Room 4402  
Salt Lake City, UT 84138-1100  
(801) 524-4550  
FAX (801) 524-4403

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April 22, 2008

Mr. S. Blaise Chanson  
Project Manager  
Bio-West, Inc.  
1063 West 1400 North  
Logan, Utah 84321-2291

Dear Mr. Chanson:

Thank you for the letter regarding the 1000 West (SR-252) from SR-91 to 2500 North, Logan, Proposed Corridor Road Improvements.

NRCS encourages state agencies to retain important farmlands, rangelands, forest lands, and wetlands and to avoid encroachment on floodplains when practicable alternatives exist to meet developmental needs. To facilitate this, we encourage you to utilize existing soil survey information for your project planning. Soil survey data can also inform of any soil properties and limitations that may affect your project. Soil survey information for Utah is available at <http://www.ut.nrcs.usda.gov/technical/soils/index.htm>.

If you have any questions, please contact Mike Domeier, State Soil Scientist, at (801) 524-4574.

Sincerely,

A handwritten signature in blue ink that reads "M. Ron Davidson". The signature is fluid and cursive, with the first name "M. Ron" and last name "Davidson" clearly distinguishable.

M. RON DAVIDSON  
Assistant State Conservationist – Technology



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY ENGINEER DISTRICT, SACRAMENTO**  
**CORPS OF ENGINEERS**  
**1325 J STREET**  
**SACRAMENTO CA 95814-2922**

REPLY TO  
ATTENTION OF

January 8, 2010

Regulatory Division (SPK-2008-00528-UO)

Ryan Halverson  
Utah Department of Transportation  
166 West Southwell Street  
Ogden, Utah 84404-4194

Dear Mr. Halverson:

We are responding to your request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for two UDOT project corridors in Logan: 1) along 1000 West from State Route 91 north to 2500 North and 2) along 2500 North from 1000 West east to State Route 91. The approximately 7 mile by 120 foot corridor along 1000 West is located in Sections 5, 8 and 17, Township 11 North, Range 1 East, and Sections 17, 20, 29 and 32, Township 12 North, Range 1 East. The 2 mile by 160 foot corridor along 2500 North is located in Sections 16 and 17, Township 12 North, Range 1 East; Latitude 41.74°, Longitude -111.85°, in the City of Logan, Cache County, Utah.

Based on available information, we concur with the estimate of potential waters of the United States as depicted on the enclosed Bio-West Wetland Delineation Map (Figure 1 and Sheets 1-10), dated December 2009, as well as the Civil Science's Logan 2500 North Wetlands Maps 1-3, dated August 2008. The approximately 18.96 acres of wetlands or other water bodies present within the survey areas may be jurisdictional waters of the United States. These waters may be regulated under Section 404 of the Clean Water Act.

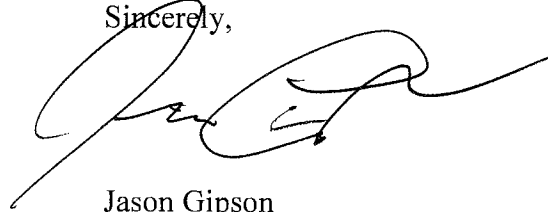
A copy of our RGL 08-02 Preliminary Jurisdictional Determination Form for this site is enclosed. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature, we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in any potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization, or if you intend to request an approved JD for this site. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary. This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request.

We appreciate your feedback. At your convenience, please tell us how we are doing by completing a Customer Survey from the link (right) on our website at:  
<http://www.spk.usace.army.mil/regulatory.html/>.

Please refer to identification number SPK-2008-00528-UO in any correspondence concerning this project. If you have any questions, please contact John Derinzy at Nevada-Utah Regulatory Branch, 533 West 2600 South, Suite 150, Bountiful, Utah 84010, telephone 801-295-8380, or email *John.W.Derinzy@usace.army.mil*.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jason Gipson', with a stylized flourish extending to the right.

Jason Gipson  
Chief, Nevada-Utah Regulatory Branch

Enclosures

Copy furnished without enclosures:

Robert Thomas, Bio-West, Inc., 1063 West 1400 North, Logan, Utah 84321



**FEMA**

R8-MIT

May 22, 2008

S. Blaise Chanson  
Project Manager  
BIO-WEST, Inc.  
1063 West 1140 North  
Logan, Utah 84321

Dear Mr. Chanson:

Thank you for your letter requesting comment on the 1000 West (SR-252) from SR-91 to 2500 North Logan, Proposed Corridor Road Improvements, Logan, Utah participates in the National Flood Insurance Program (NFIP) and FEMA has published a Flood Insurance Rate Map (FIRM), which delineates the Special Flood Hazard Area (SFHA) for select areas of Logan, Utah.

Should the proposed project be located in a SFHA, then the project would need to conform to the Flood Damage Prevention Ordinance adopted by the City for participation in the NFIP. Please be advised that implementation of the NFIP construction requirements resides at the local government through enforcement of the local Flood Damage Prevention Ordinance. The proposed project will need to be coordinated with the City government and proper permits would be required.

The Floodplain Administrator for Logan, Utah is Bill Young. Following is his contact information:

Mr. Bill Young  
City Engineer  
255 North Main Street  
Logan, UT 84321  
435-716-9160

If you have further questions, please feel free to contact me at (303) 235-4739 or by Email at [bonnie.heddin@dhs.gov](mailto:bonnie.heddin@dhs.gov).

Sincerely,

Bonnie G. Heddin, CFM  
Natural Hazards Program Specialist  
National Flood Insurance Program





State of Utah

GARY R. HERBERT  
Governor

GREG BELL  
Lieutenant Governor

## DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.  
Executive Director

CARLOS M. BRACERAS, P.E.  
Deputy Director

09-1587

November 19, 2009

Mr. Cory Jensen  
Architectural Historian/National Register & Survey Coordinator  
Division of State History  
300 Rio Grande  
Salt Lake City, UT 84101-1182

RE: UDOT Project Number: S-0252(6)0; SR-252; 1000 West, Logan, Utah (PIN: 6457)  
**Determination of Eligibility and Finding of Adverse Effect.**

Dear Mr. Jensen:

The Utah Department of Transportation (UDOT) is proposing to use state funds for roadway improvements along 1000 West/SR-252 and 2500 North in Logan, Cache County, Utah. In accordance with Utah Code Annotated (U.C.A.) §9-8-404 and the the *Programmatic Agreement Between the Utah Department of Transportation and the Utah State Historic Preservation Officer Regarding Implementation U.C.A. 9-8-404 for State-Funded Transportation Projects in Utah* (signed into effect March 19, 2008), the UDOT is taking into account the effects of this undertaking on historic properties within the area of potential effects (APE) for this project and is affording the Utah State Historic Preservation Office (USHPO) an opportunity to comment on the undertaking and its effects. This letter contains the Determinations of Eligibility and the Findings of Effect (DOE-FOE) for the historic properties within the APE for this project. Tables 1 through 4 below summarize the DOE-FOE. Please review this letter and enclosed information and, if you agree with the findings outlined herein, please sign and date the signature line at the end of the letter.

### **Project Description:**

The project limits include 1000 West/SR-252 from its intersection with SR-89/SR-91 on the south (including 1500 feet along the west side of SR-89/SR-91, south of 1000 West/SR-252) to its intersection with 2500 North on the north. From the intersection of 2500 North and 1000 West/SR-252, the project corridor continues east on 2500 North to 1000 feet east of the existing intersection with Main Street (SR-91).

In summary, the proposed project would include the following features and construction:

- Roadway widening to include at least 2 through lanes, median, shoulders and curb/gutter/sidewalk.
- Roadway widening in the residential area (800 South to 200 South) to implement a frontage road adjacent to 1000 West/SR-252.
- Pedestrian sidewalk facilities with wider setbacks through the residential section.

- Appropriate pavement replacement where necessary.
- Intersection modifications and improvements along 1000 West/SR-252 at SR-89/SR-91, 600 South, 200 North, 1000 North, 1400 North, and 2500 North.
- Logan River bridge widening.
- Utility relocations and storm water drainage system.

Right-of-way and perpetual easements will be required throughout much of the developed portions of the corridor. Right-of-way acquisition will also be necessary at major intersections and for Logan River bridge widening.

#### **Cultural Resources:**

A cultural resources inventory, including a Class I Records Search, an intensive-level pedestrian field survey, a historic architectural resources survey, consultation with the certified local government (CLG) Logan City on effects to historic properties, and consultation with Native American tribes on traditional cultural properties and other historic property types, were conducted for the APE. The APE ranges from 15 meters (49 feet) wide to 76.2 meters (250 feet) wide; all areas of proposed new right-of-way are within the APE and were inventoried for cultural resources. Between April and late November in 2008 and in September 2009 Sagebrush Consultants, L.L.C. (Sagebrush) surveyed the APE in its entirety. During the field survey Sagebrush identified a total of 14 cultural resources including both historic buildings and archaeological sites (see the enclosed cultural resources inventory reports; see Tables 1 through 4 below). No other known historic properties or traditional cultural properties are located within the APE.

#### **Architectural Resources:**

Of the 14 total cultural resources identified during the inventory, 10 of them are historic buildings, primarily historic residences. Six of the 10 properties are determined eligible for the NRHP, as summarized in Table 1. Three of the properties will be adversely affected by the project and three will not, as summarized in Table 2.

Table 1. Determination of Eligibility for Historic Buildings

Address	Date of Construction	Description	USHPO Rating/ NRHP Eligibility
?200 N 1000 W	ca. 1910	Commercial, historic tannery?	C-rated/Not Eligible
145 N 1000 W	ca. 1935	Commercial, Valley Recycling	C-rated/Not Eligible
555 S 1000 W	1934	English Tudor/Period Cottage	A-rated/Eligible, Criterion C
575 S 1000 W	1909	Victorian, Cross-wing	C-rated/Not Eligible
1005 W 600 S	1936	English Tudor/Period Cottage	A-rated/Eligible, Criterion C
1030 W 600 S	1918	Bungaloid gable on gable	B-rated/Eligible, Criterion C
1018 W 500 S / 525 S 1000 W	1897	Other/Cross-wing	B-rated/Eligible, Criterion C
750 S (655 S on the mailbox) 1000 W	1908	Other/20th Century Modern	C-rated/Not Eligible
1995 S HWY 89/91	1953	Ranch-style	B-rated/Eligible, Criterion C
2085 S HWY 89/91	1947	Minimal Traditional/Period Cottage influence	B-rated/Eligible, Criterion C

Two of the 10 buildings cited in Tables 1 and 2 are rated at the USHPO "A" level of integrity and significance, indicating that the buildings were constructed in the historic period, that they retain a high degree of physical integrity, and are excellent examples of their individual styles or types. Four of the buildings are rated at the USHPO "B" level of integrity and significance, which indicates that the buildings were constructed in the historic period and that they are good examples of their individual styles or types but that they are not as well preserved or as well executed as "A"-rated buildings. The remaining four buildings are rated at the USHPO "C" level of integrity and significance. Buildings rated at the "C" level of integrity and significance were built in the historic period but have been altered or affected to a degree that they no longer maintain the integrity necessary to be considered eligible for the NRHP.

All of the "A"-rated and "B"-rated buildings identified in the inventory are determined NRHP-eligible under Criterion C. The NRHP-eligible historic buildings that will be adversely affected—a FOE of Adverse Effect—by the project will be completely demolished (see Table 2). Those NRHP-eligible buildings that will be affected but not adversely affected—a FOE of No Adverse Effect—by the project will have either easements or property acquisition obtained from them that will not affect the primary buildings or outbuildings (see Table 2). All "C"-rated buildings are determined ineligible for the NRHP and, although they may or may not be destroyed, the FOE is No Historic Properties Affected.

Table 2. Finding of Effect for Historic Buildings

Address	SHPO Rating/NRHP Eligibility	NRHP Effect
7200 N 1000 W	C-rated/Not Eligible	No Historic Properties Affected
145 N 1000 W	C-rated/Not Eligible	No Historic Properties Affected
555 S 1000 W	A-rated/Eligible, Criterion C	Adverse Effect; complete property take.
575 S 1000 W	C-rated/Not Eligible	No Historic Properties Affected
1005 W 600 S	A-rated/Eligible, Criterion C	Adverse Effect; complete property take.
1030 W 600 S	B-rated/Eligible, Criterion C	No Adverse Effect; partial acquisition of 604 square feet of property, acquisition avoids primary building.
1018 W 500 S / 525 S 1000 W	B-rated/Eligible, Criterion C	Adverse Effect; complete property take.
750 S (655 S on the mailbox) 1000 W	C-rated/Not Eligible	No Historic Properties Affected
1995 S HWY 89/91	B-rated/Eligible, Criterion C	No Adverse Effect; a slope and utility easement will be required but there will be no property acquisition, the easement avoids the primary building and outbuildings.
2085 S HWY 89/91	B-rated/Eligible, Criterion C	No Historic Properties Affected

### Archaeological Resources:

Four archaeological sites, including a historic railroad alignment, a canal, and two wooden corrals and associated features, were identified in the cultural resources inventory. As summarized in Tables 3 and 4 below, two of the sites are determined eligible for the NRHP, neither of which will be adversely affected by the project.



Table 3. Determination of Eligibility for Archaeological Sites

Site Number	Age & Affiliation	Description	NRHP Eligibility
42CA88	1873, Historic Period	Segment of the Utah Northern/Oregon Shortline/Union Pacific Railroad	Eligible, Criteria A, C
42CA143	1880, Historic Period	Segment of the Logan and Benson Canal	Eligible, Criterion A
42CA144	Unknown age, Historic Period	Wooden corral, wooden shed, and loading chute	Not Eligible
42CA145	Unknown age, Historic Period	Wooden corral, hay barn, loading chute, trough, and water pipe	Not Eligible

Of the four archaeological sites identified in the inventory, Site 42CA88 and Site 42CA143 are determined eligible for the NRHP; Site 42CA88 is eligible under Criteria A and C and Site 42CA143 is eligible under Criterion C. Site 42CA88—a segment of the historic Utah Northern/Oregon Shortline/Union Pacific Railroad—was originally determined eligible under Criteria A and C in 1999 under Utah Division of State History Project No. U-99-ST-0698. Because Site 42CA88 still retains integrity of location, setting, and feeling, it is determined that the site maintain the original NRHP eligibility under Criteria A and C. The section of Site 42CA88 located in the project APE is not a contributing element of the overall integrity of the site as there are no surficial physical remains of the site in the APE. Although there is no surficial evidence of the site where it crosses the 1000 West/SR-252 roadway, some subsurface evidence of the site may be present and may be affected by project construction activities. The effect, however, would not adversely affect the site's historical integrity. As such, the proposed project will result in a FOE of No Adverse Effect for Site 42CA88.

Site 42CA143—a segment of the historic Logan Benson Canal—is part of one of the earliest irrigation canals in Cache Valley and was important in the settlement, development, and agricultural economy of the area. Integrity of the site remains intact and it is determined eligible for the NRHP under Criterion A. Project construction activities will entirely avoid the site. As such, the proposed project will result in a FOE of No Historic Properties Affected for Site 42CA143.

Sites 42CA144 and 42CA145 are both wooden corrals and associated other historic items. Both are determined ineligible for the NRHP and, although they may or may not be destroyed, the FOE is No Historic Properties Affected.

Table 4. Finding of Effect for Archaeological Sites

Site Number	NRHP Eligibility	NRHP Effect
42CA88	Eligible, Criteria A, C	No Adverse Effect; the 10th West/SR-252 alignment will cross over a segment of the railroad.
42CA143	Eligible, Criterion A	No Historic Properties Affected; the project will have no effect on the canal or where it crosses the 10th West/SR-252 alignment.
42CA144	Not Eligible	No Historic Properties Affected
42CA145	Not Eligible	No Historic Properties Affected

### Consultation with the Logan CLG

The UDOT Environmental staff has notified the Logan CLG of the adverse effects of the project on three historic buildings eligible for the NRHP. While we have not received a response as to whether Logan City would like to participate in a Memorandum of Agreement (MOA), we anticipate that UDOT will provide mitigation funding for reconnaissance-level survey in Logan City. In recent discussions over possible

mitigation efforts on other projects in their community, Logan City has indicated to UDOT that expanding their reconnaissance-level surveys is a priority in their historic preservation efforts.

**Native American Consultation:**

In accordance with stipulations outlined in the *Programmatic Agreement Between the Utah Department of Transportation and the Utah State Historic Preservation Officer Regarding Implementation U.C.A. 9-8-404 for State-Funded Transportation Projects in Utah* (signed into effect March 19, 2008), the UDOT initiated consultation with several Native American tribes/bands, including the Northwestern Band of the Shoshone Nation, the Uintah and Ouray Ute Indian Reservation, the Shoshone-Bannock Tribes of Fort Hall, and the Eastern Shoshone Tribe of the Wind River Reservation. Formal letters sent to the tribes/bands in April 2008 requested information on any cultural resources they may have knowledge of in the project vicinity and invited them to be consulting parties. To date there have been no responses from the contacted tribes. Should any tribe/band respond or request any information, UDOT will continue with consultation and provide the necessary information.

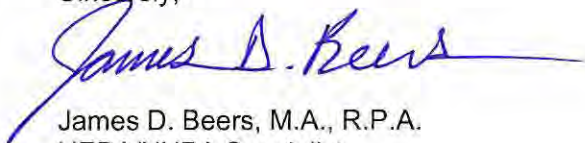
**Summary:**

Given the aforementioned effects of project construction activities on historic properties within the APE, the UDOT has determined that the FOE for the proposed UDOT Project Number: S-0252(6)0; SR-252; 1000 West, Logan, Utah, is **Adverse Effect**.

Enclosed, please find copies of the final cultural resources inventory reports and associated materials, including IMACS Site Forms with photographs, Historic Site Forms with photographs, project location and historic property location maps, diagrams showing project effects to NRHP-eligible historic properties, and CDs containing digital photographs of historic properties.

Please review this document and, providing you agree with the findings contained herein, sign and date the signature line at the end of this letter. Should you have any questions or need additional information, please feel free to contact James Beers at (801) 620-1635 or [jamesbeers@utah.gov](mailto:jamesbeers@utah.gov) or Elizabeth Giraud at (801) 965-4917 or [egiraud@utah.gov](mailto:egiraud@utah.gov).

Sincerely,



James D. Beers, M.A., R.P.A.  
NEPA/NHPA Specialist  
UDOT Region 1



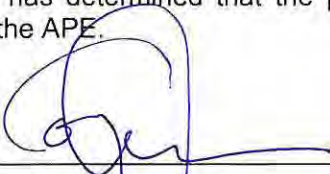
Elizabeth Giraud, AICP  
Architectural Historian  
UDOT Central

**Enclosures:**

Architectural Survey Report  
Cultural Resources Survey Report  
Addenda Cultural Resource Inventory Reports  
IMACS Site Forms and photographs  
Historic Site Forms and photographs  
Diagrams showing project effects to NRHP-eligible historic properties  
Project location and historic property location maps  
CD with historic property digital photographs



Regarding the UDOT Project Number: S-0252(6)0; SR-252; 1000 West, Logan, Utah, I concur with the Determination of Eligibility and Finding of Effect, submitted to the Utah State Historic Preservation Officer in accordance with U.C.A. 9-8-404 and the *Programmatic Agreement Between the Utah Department of Transportation and the Utah State Historic Preservation Officer Regarding Implementation U.C.A. 9-8-404 for State-Funded Transportation Projects in Utah* (signed into effect March 19, 2008), which states that the UDOT has determined that the proposed project will have an **Adverse Effect** on the historic properties within the APE.



Cory Jensen  
Architectural Historian/National Register & Survey Coordinator  
Division of State History

11/25/09

Date

**MEMORANDUM OF AGREEMENT**  
**BETWEEN**  
**THE UTAH DEPARTMENT OF TRANSPORTATION**  
**AND THE**  
**UTAH STATE HISTORIC PRESERVATION OFFICER**  
**REGARDING THE**  
**UDOT PROJECT NUMBER: S-0252(6)0; SR-252; 1000 WEST, LOGAN, UTAH**

**WHEREAS**, the Utah Department of Transportation (UDOT) plans to use state funds to make roadway improvements along the proposed 1000 West (SR-252) project limits in Logan City, Cache County, Utah (the undertaking); and

**WHEREAS**, the UDOT has determined that the undertaking will have an adverse effect on three historic buildings in Logan — 555 South 1000 West, 1005 West 600 South, and 1018 West 500 South/525 South 1000 West — which are eligible for listing on the National Register of Historic Places as defined under U.C.A. 9-8-302(10), and has consulted with the Utah State Historic Preservation Officer (SHPO) pursuant to Utah Code Annotated (U.C.A.) 9-8-404 and applicable compliance procedures outlined in the *Programmatic Agreement Between the Utah Department of Transportation and the Utah State Historic Preservation Officer Regarding the Implementation of U.C.A. 9-8-404 for State-Funded Transportation Projects* (U.C.A. 9-8-404 PA) (signed into effect March 19, 2008); and

**WHEREAS**, the UDOT has contacted the Logan City Certified Local Government (CLG) regarding consultation on mitigation of adverse effects to historic properties and has invited them to be a consulting party pursuant to Stipulation VI(A)(1) and (2) in the *Programmatic Agreement among the FHWA, the UDOT, the Utah State Historic Preservation Office, and the Advisory Council on Historic Preservation Regarding Section 106 Implementation for Federal-Aid Transportation Projects* (106 PA) (signed into effect April 16, 2007), which is followed under the U.C.A. 9-8-404 PA; and

**WHEREAS**, the Logan City CLG has requested to be a consulting party and has consulted with the UDOT regarding mitigation of adverse effects to historic properties under this undertaking, the UDOT has invited the Logan City CLG to sign this Memorandum of Agreement (MOA) as an invited signatory pursuant to the U.C.A. 9-8-404 PA; and

**NOW, THEREFORE**, as signatories, the UDOT and the SHPO, and as an invited signatory, the Logan City CLG, agree that the undertaking shall be implemented in accordance with the following stipulations in this Memorandum of Agreement (MOA) to take into account the effect of the undertaking on historic properties.

**STIPULATIONS**

The UDOT shall ensure that the following measures are carried out:

**I. MITIGATION OF ADVERSE EFFECTS ON HISTORIC BUILDINGS**

- A. Documentation of Affected Historic Buildings along the 10<sup>th</sup> West/SR-252 Project Corridor Prior to construction activity, the UDOT will research and record the historic buildings (residences) in Logan City — 555 South 1000 West, 1005 West 600 South, and 1018 West 500 South/525 South 1000 West — listed in Table 1 below according to the Utah State Intensive Level Survey (ILS) Standards outlined in the *Intensive Level Survey Standard Operation Procedures* written by SHPO. Documentation will include completed ILS Historic Site Forms, black and white photographs of the buildings, a sketch map of the property layout, aerial photograph maps indicating the location of the buildings, and U.S. Geological Survey maps (scale: 1:24,000) indicating the location of the buildings

## B. Update Logan City's 1999 Reconnaissance-Level Survey for Historic Buildings

The UDOT will enter into a Cooperative Agreement with Logan City to provide Logan City with \$5,000 to go toward updating the Logan City 1999 Reconnaissance Level Survey of historic buildings. The Cooperative Agreement will outline the stipulations for providing and utilizing the funds. Logan City will be required to perform a reconnaissance-level survey of historic buildings as part of updating the reconnaissance-level survey conducted in 1999. Logan City will undertake the reconnaissance-level survey according to SHPO *Standard Operating Procedures for Reconnaissance Level Surveys*.

## C. Submission of Documentation

The UDOT will submit ILS forms for the buildings listed in Stipulation I, Part A (see also Table 1) to the SHPO. Logan City will submit to UDOT the reconnaissance level survey required in Stipulation I, Part B to the UDOT and the UDOT will submit the final draft of said documentation to the SHPO. Should any other signatories be interested in a copy of the documentation, Logan City will supply them with a copy.

Table 1. Historic Properties, Adverse Effects, and Mitigation Plan Summary

Historic Property	Date*	Description/Style	SHPO Rating/NRHP Eligibility	Adverse Effect	Mitigation
555 S 1000 W	1934	English Tudor/Period Cottage	A-rated/Eligible, Criterion C	Complete property take; destruction of building	ILS-level recording of historic property
1005 W 600 S	1958	English Tudor/Period Cottage	A-rated/Eligible, Criterion C	Complete property take; destruction of building	ILS-level recording of historic property
1018 W 500 S/525 S 1000 W	1897	Other/Cross-wing	B-rated/Eligible, Criterion C	Complete property take; destruction of building	ILS-level recording of historic property

\*Date of construction.

## II. PERSONNEL QUALIFICATIONS

For the documentation of the properties association with Stipulation I, Part A, UDOT will ensure that all historic property identification and recordation carried out pursuant to this agreement is completed by a person or persons meeting or exceeding the Secretary of the Interior's Professional Qualification Standards (published in 48 FR 44738-44739; see also 36 CFR 61 Appendix A) as indicated in the 106 PA, which is also followed under U.C.A. 9-8-404 PA Stipulation I.

For the completion of the updated survey described in Stipulation I, Part B, Logan will hire a consultant(s) that meets the requirements of Section A(3) of the *Standard Operating Procedures for Reconnaissance Level Surveys*.

## III. DURATION

This MOA will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, the UDOT may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VI below.

#### **IV. DISCOVERY**

The UDOT will manage unanticipated post-review discoveries of cultural resources in accordance with Stipulation XI, Part B in the 106 PA, which is also in accordance with the U.C.A. 9-8-404 review as indicated in Stipulation I in the U.C.A. 9-8-404 PA. Under the U.C.A. 9-8-404 PA, the Federal Highways Administration (FHWA) and the Advisory Council on Historic Preservation (Council) are not involved in consultation regarding post-review discoveries.

#### **V. DISPUTE RESOLUTION**

Should any party to this agreement object at any time to any actions proposed in this agreement or object to the manner in which the terms of this MOA are implemented, the parties to this agreement will comply with procedures outlined in U.C.A. 9-8-404(2) and (3).

#### **VI. AMENDMENTS**

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy is signed by all of the signatories.

#### **VII. TERMINATION**

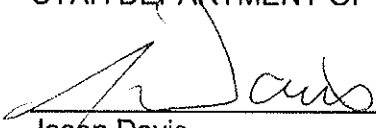
If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VI, above. If within 30 days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, the UDOT must either (a) execute an MOA pursuant to Stipulation IX.D.4 in the 106 PA, which is also in accordance with the U.C.A. 9-8-404 review as indicated in Stipulation I in the U.C.A. 9-8-404 PA or (b) request, take into account, and respond to the comments of the Public Lands Policy Coordination Office as per U.C.A. 9-8-404(2) and (3).

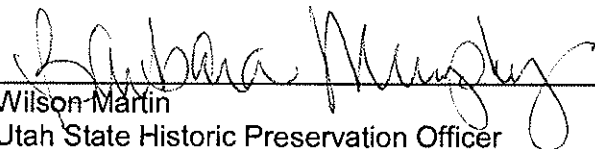
Execution of this MOA by the UDOT and the SHPO and implementation of its terms evidences that the UDOT has taken into account the effects of this undertaking on historic properties and afforded the SHPO an opportunity to comment.

**SIGNATORIES:**

UTAH DEPARTMENT OF TRANSPORTATION


  
\_\_\_\_\_  
Jason Davis  
UDOT Region One Director  
5/5/10  
\_\_\_\_\_  
Date

UTAH STATE HISTORIC PRESERVATION OFFICER


g   
\_\_\_\_\_  
Wilson Martin  
Utah State Historic Preservation Officer  
5-5-10  
\_\_\_\_\_  
Date

**INVITED SIGNATORY:**

LOGAN CITY

  
\_\_\_\_\_  
Randy Watts  
Logan City Mayor  
5/4/10  
\_\_\_\_\_  
Date

LOGAN CITY CERTIFIED LOCAL GOVERNMENT

  
\_\_\_\_\_  
Thomas Graham, Chairperson  
Logan City Certified Local Government  
5/3/10  
\_\_\_\_\_  
Date





JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Utah Geological Survey

RICHARD C. ALLIS  
*State Geologist/Division Director*

APR 12 2008

April 10, 2008

Wendy Simmons Johnson  
Sagebrush Consultants  
3670 Quincy Avenue, Suite 203  
Ogden UT 84403

RE: Paleontological File Search and Recommendations for the 1000 West Project, Logan,  
Cache County, Utah  
U.C.A. 63-73-19 compliance; literature search for paleontological specimens or sites

Dear Wendy:

I have conducted a paleontological file search for the 1000 West Project in Logan in response to your email of April 10, 2008. This project qualifies for treatment under the UDOT/UGS executed Memorandum of Understanding.

There are no paleontological localities recorded in this project area. Surficial deposits in this project area are mapped as Quaternary alluvium (Qay) and Lake Bonneville shoreline sand and gravel deposits (Qltg, Qlts). The Quaternary alluvium has a low potential for yielding significant fossil localities. However, Lake Bonneville have the potential for yielding significant vertebrate fossil localities, so please be aware of possible impacts to paleontological resources if they are disturbed as a result of construction activities. If any fossils are found, an evaluation by a professional paleontologist should be conducted. Otherwise, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden  
Paleontological Assistant





State of Utah

Department of  
Environmental Quality

Richard W. Sprott  
*Executive Director*

DIVISION OF ENVIRONMENTAL  
RESPONSE AND REMEDIATION

Brad T Johnson  
*Director*

JON M. HUNTSMAN, JR.  
*Governor*

GARY HERBERT  
*Lieutenant Governor*

ERRC-071-08

May 2, 2008

S. Blaise Chanson  
Project Manager  
BIO-WEST, Inc.  
1063 West 1400 North  
Logan, Utah 84321

**Re: 1000 West (SR-252) from SR-91 to 2500 North, Logan**

Dear Mr. Chanson:

The Utah Department of Environmental Quality, Division of Environmental Response and Remediation (DERR) has received your request, dated April 17, 2008, for input regarding the above referenced Utah Department of Transportation project.

A preliminary review of the DERR database and interactive map found several potential sites along the route. We encourage you to review the DERR interactive map prior to construction to ensure you are informed of potential contamination. The interactive map is located at: [www.atlas.utah.gov/deqderr/](http://www.atlas.utah.gov/deqderr/). You are also encouraged to speak to the Division of Solid and Hazardous Waste at (801) 538-6170 and the Division of Water Quality at (801) 538-6146.

It is possible that future construction activities associated with this project will encounter hazardous substances. These materials must be managed and disposed of properly. Should impacted materials be encountered during construction, please notify the DERR.

If you have any questions regarding this project, feel free to contact me at (801) 536-4219.

Sincerely,

A handwritten signature in blue ink that reads "David Bird".

David Bird, Environmental Engineer  
Division of Environmental Response and Remediation

DGB/eds

cc: Lloyd C. Berentzen, M.B.A., Director, Bear River Health Department



State of Utah

Department of  
Environmental Quality

Richard W. Sprott  
*Executive Director*

DIVISION OF DRINKING WATER  
Kenneth H. Bousfield, P.E.  
*Director*

**Drinking Water Board**  
Anne Erickson, Ed.D., *Chair*  
Myron Bateman, *Vice-Chair*  
Ken Bassett  
Daniel Fleming  
Jay Franson, P.E.  
Helen Graber, Ph.D.  
Paul Hansen, P.E.  
Petra Rust  
Richard W. Sprott  
David K. Stevens, Ph.D.  
Ron Thompson  
Kenneth H. Bousfield, P.E.  
*Executive Secretary*

JON M. HUNTSMAN, JR.  
*Governor*

GARY HERBERT  
*Lieutenant Governor*

May 5, 2008

S. Blaise Chanson  
Bio-West, Inc.  
1063 West 1400 North  
Logan, UT 84321

Dear Mr. Chanson:

Subject: Agency Comment, Logan City Proposed Corridor Road  
Improvements, 1000 West to 2500 North

The Division received your request for agency comments on the subject project April 18, 2008. The project area appears to fall within the service areas of two Utah public water systems (PWS's), the City of Logan (System #03010) and the City of North Logan (System #03015).

Based on your letter's statement that utility relocations may be involved in the project, we wish to refer you to State Rule R309-500-4(1), Construction and Operation of New Facilities:

*As authorized in 19-4-106(3) of the Utah Code, the Executive Secretary may review plans, specifications, and other data pertinent to proposed or expanded water supply systems to insure proper design and construction ...*

*Construction of new facilities for public water systems ... shall conform with rules R309-500 through R309-550; the "Facility Design and Operation" rules ...*

*Construction of a public drinking water project shall not begin until complete plans and specifications have been approved in writing by the Executive Secretary unless waivers have been issued as allowed by R309-500-6(3). This approval shall be referred to as the Plan Approval.*

S. Blaise Chanson

May 5, 2008

Page 2 of 2

Water system infrastructure aspects of the subject project — such as waterline construction, hydrant installation, separation of water utilities from sewage collection systems, etc., — will likely require review and approval by the Executive Secretary of the Drinking Water Board. We anticipate that as you work with the water system managers, for both the City of Logan and the City of North Logan, they will keep you apprised of plan submittal obligations to us at the Division of Drinking Water. If the project involves no water system infrastructure changes or additions, no approvals will be required from the Division of Drinking Water.

If we can be of any further assistance, please do not hesitate to call Steven Onysko of our, Engineering Section, at (801) 536-0096, or Ying-Ying Macauley, Engineering Section Manager, for the Division of Drinking Water, at (801) 536-4188.

Sincerely,

DRINKING WATER BOARD



Kenneth H. Bousfield, P.E.  
Executive Secretary

sj0

cc: Joel Hoyt, Env. Director, Bear River Health Department, 655 East 1300 North, Logan, UT 84341  
Craig Humphreys, Fire Marshall, Cache County Fire District, 179 North Main, Suite 112, Logan, UT 84321  
Josh Runhaar, Zoning Administrator, Cache County, 179 North Main St., Suite 305, Logan, UT 84321  
Robert K. Wilhelm, Water System Manager, City of North Logan, 2128 North 1200 East, North Logan, UT 84341  
Keri Lynn Wood, Water System Manager, City of Logan, 279 South 400 East, Logan, UT 84321

U:\Dr\_Water\Engineer\SONysko\Plans\Logan&NorthLogan2008RoadwayCorridorProject.doc



## State of Utah

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

## Office of the Governor

PUBLIC LANDS POLICY COORDINATION

JOHN HARJA  
*Director*

RESOURCE DEVELOPMENT COORDINATING COMMITTEE  
*Public Lands Section*

May 6, 2008

S. Blaise Chanson  
BIO-West, Inc.  
1063 West 1400 North  
Logan, Utah 84321

SUBJECT: 100 West (SR-252) from SR-91 to 2500 North  
Project No. 08-9199

Dear Mr. Chanson:

The Resource Development Coordinating Committee (RDCC) has reviewed this proposal for the 1000 West (SR-252) from SR-91 to 2500 North road corridor improvement project in Cache County. The Division of Air Quality comments:

This proposal will not require a permit. However, if any "non-permitted" rock crushing plants, asphalt plants, or concrete batch plants are located at the site, an Approval Order from the Executive Secretary of the Air Quality Board will be required for operation of the equipment, including all equipment not permitted in Utah. A permit application, known as a Notice of Intent (NOI), should be submitted to the Executive Secretary at the Utah Division of Air Quality at 150 North, 1950 West, Salt Lake City, Utah, 84116 for review according to R307-401: Permit: Notice of Intent and Approval Order, of the Utah Air Quality Rules. The guidelines for preparing a NOI are available on-line at:

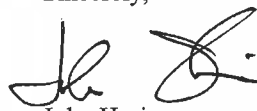
<http://www.airquality.utah.gov/Permits/FORMS/NOIGuide8.pdf>

The proposed project, in Cache County, is subject to R307-205-5: Fugitive Dust, of the Utah Air Quality Rules, due to the fugitive dust that is generated during the excavating phases of the project. These rules apply to construction activities that disturb an area greater than 1/4 acre in size. A permit, known as an Approval Order, is not required from the Executive Secretary of the Air Quality Board, but steps need to be taken to minimize fugitive dust, such as watering and/or chemical stabilization, providing vegetative or synthetic cover or windbreaks. A copy of the rules may be found at:

[www.rules.utah.gov/publicat/code/r307/r307.htm](http://www.rules.utah.gov/publicat/code/r307/r307.htm)

The Committee appreciates the opportunity to review this proposal. Please direct any other written questions regarding this correspondence to the Resource Development Coordinating Committee, Public Lands Section, at the above address, or call the Director, Jonathan G. Jemming, at (801) 537-9023, or Carolyn Wright at (801) 537-9230.

Sincerely,

  
John Harja  
Director



# Memorandum

Utah Department of Transportation

---

To: Blaise Chanson, Principal  
Bio-West, Inc.

From: Paul W. West, Wildlife/Wetlands Biologist  
UDOT, Environmental Services

Date: February 22, 2010

Re: S-0252(6)0 – SR-252, 1000 West Corridor Improvement Project in Logan Update, Cache County (PIN 6457)

CC: Rebecka Stromness – UDOT, Environmental Services  
Betsy Skinner – UDOT, Environmental Services  
Christopher Lizotte – UDOT, Region 1  
Laura Romin – US FWS  
Scott Walker – UDWR, Northern Region  
Pam Kramer – UDWR, Northern Region  
File

---

On July 30, 2008, I sent you a memo regarding threatened or endangered species for the above-referenced project. Since it has been more than a year, an updated memo is needed.

I understand that the scope of this project has not changed. As before, UDOT is proposing corridor improvements on the existing 1000 West and 2500 North streets in Logan, Cache County (see location map). The corridor is approximately 7 miles long, extending from the intersection of 1000 West Street and Highway 91/89 south of Logan, north to 2500 North Street, then east on 2500 North Street to the intersection with Highway 91 at the north end of Logan. Improvements are anticipated primarily within the existing right-of-way (ROW); although some minor ROW may be acquired at the intersections, and some additional ROW may be required adjacent to the Logan River for bridge widening.

As before, a review of the Utah Division of Wildlife Resources (UDWR) database indicates that marginal habitat exists for yellow-billed cuckoos (*Coccyzus americanus occidentalis*) approximately 125 feet upstream (east) and approximately 400 feet downstream (west) of the SR-252 bridge over the Logan River. However, no nesting or use has ever been recorded in the area. Therefore, it is my opinion that this project should have no effect to these birds. No other federally listed, threatened, endangered, or candidate species or any critical habitat in the State of Utah would be affected by this project.

Other sensitive species potentially within the project area are raptors, primarily red-tailed hawks (*Buteo jamaicensis*) and Swainson's hawks (*Buteo swainsoni*). According to Blaise Chanson with Bio-West, "No raptor stick nests have been observed within or adjacent to the SR-252 ROW.... Any raptor use of the general areas is indicative of acclimation to some human activity (e.g. car and large

truck traffic, human activity at a distance), and it is unlikely that road and bridge construction would affect general use of the available habitat by raptors.” Therefore, this project should have no effect to these, or any other migratory species.

In accordance with the U.S. Fish and Wildlife Service memo dated January 27, 2006, we are not required to obtain a concurrence letters from them for “no-effect” determinations. Therefore, this memo is issued in-lieu of their concurrence letter for your environmental documentation.

-----

I have also evaluated this project with respect to wildlife concerns on the UDOT Environmental Study Form. Based on the Utah Division of Wildlife database, UDOT’s Traffic and Safety data, and the Wildlife Connectivity database.

With the bridgework over the Logan River, there was some concern for sensitive fish habitat. Again, according to Chanson, “The 1000 West project will likely include the crossing of only one stream/river, that being the Logan River. It is anticipated that the project will include widening of the existing bridge over the Logan River. This widening will likely be done with precast girders and precast slab. Currently it is not known if the reconstructed abutments will encroach within the existing river channel. However, this is a likely scenario.

“The Logan River at the 1000 West crossing provides habitat for brown trout (*Salmo trutta*), carp (*Cyprinus carpio*) and a few mottled sculpin (*Cottus bairdii*). All species are common throughout the state and the Logan River. No sensitive or rare species occur within the project area. No aquatic species are identified on the US FWS list for Cache County (November 2007) of threatened or endangered species or candidate species for listing.

“Some limited habitat for brown trout spawning occurs approximately 1,000 feet upstream of the 1000 West crossing. No known spawning habitat occurs at the crossing or within 1,000 feet below the crossing. The shoreline adjacent to this reach of river is privately owned and does not provide access for fishing. Brown trout are abundant within the lower segments of the Logan River (below First Dam).

“Bridge construction activities will require a Stream Alteration permit. As part of the approved permit there will be provisions to minimize any short term construction impacts to the river and riparian zone. This will include all necessary BMPs for sedimentation control. The permit will also include any necessary design provisions to ensure long-term bank stability.”

As before, with these measures in place, I feel this project would have no affect to important wildlife habitat, big game migration routes, wildlife connectivity, state sensitive species, or fish passage.

If you have any questions, please call me at (801) 965-4672, or email at [paulwest@utah.gov](mailto:paulwest@utah.gov)



**BIO-WEST, Inc.**  
1063 West 1400 North, Logan, Utah  
www.bio-west.com  
435.752.4202

## 1000 West (SR-252) Vicinity Map

0 0.5 1 2 Miles

SR-252



**APPENDIX D**  
**NOISE STUDY REPORT**





# **TRAFFIC NOISE ASSESSMENT FOR THE PROPOSED SR-252 CORRIDOR IMPROVEMENT PROJECT**

**January 2010**

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## 1.0 INTRODUCTION

UDOT is planning to use State funds for improvements to 1000 West Street (SR-252) and 2500 North Street, Logan, Cache County, Utah (the Project). The Project Area includes 1000 West Street from its intersection with SR-89/SR-91 on the south (including 1,500 feet along the western side of SR-91, south of SR-252) to its intersection with 2500 North Street on the north. From the intersection of 2500 North Street and 1000 West Street, the Project corridor continues east on 2500 North Street to 1,000 feet east of the existing intersection with Main Street (SR-91).

In summary, the Proposed Action will include the following features:

- Roadway widening to include at least two through lanes in each direction, a center continuous left turn median, paved shoulders, and curb/gutter/sidewalk.
- Roadway widening in the residential area (800 South Street to 200 South Street) necessary to implement a frontage road adjacent to SR-252.
- Pedestrian sidewalk facilities with wider setbacks through the residential section.
- Appropriate pavement replacement where necessary.
- Intersection modifications and improvements along 1000 West Street at US-89/91, 600 South Street, 200 North Street, 1000 North Street, 1400 North Street and 2500 North Street.
- Extension of the westbound acceleration lane onto US-91 westbound by approximately 750 feet.
- Closure of the intersection at 1100 West Street and US-89/91.
- Bridge widening at the Logan River.
- Utility relocations and storm water drainage system improvements.

Right-of-way and perpetual easements would be required throughout much of the developed portions of the corridor. Right-of-way acquisition would also be necessary at major intersections and for widening of the Logan River Bridge.

This technical report was prepared to document analyses performed as part of the SR-252 Corridor Improvement Project noise assessment in accordance with the UDOT's Noise Abatement Policy (UDOT 2008). The five main steps that comprise a traffic noise study were followed to conduct this assessment. These include:

- Step 1. Identifying sensitive receivers,
- Step 2. Determining existing ambient noise levels,
- Step 3. Predicting future noise levels,
- Step 4. Identifying traffic noise impacts, and
- Step 5. Evaluating mitigation measures for sensitive receivers where traffic-noise impacts occur.

## **2.0 BACKGROUND**

### **2.1 Noise Measurement**

The unit used in sound measurement is the decibel (dB); the unit used for traffic noise is the dB on the A-weighted scale (dBA). The A-weighted scale most closely represents the response of the human ear to sound. Typical A-weighted sound levels are depicted in Figure 1. The measurement that is most commonly used to express dBA levels for traffic noise is the hourly equivalent sound level (Leq[h]), or simply, the Leq. The Leq(h) describes a noise-sensitive receiver's average exposure to all noise-producing events over a 1-hour period.

Under the Federal Noise Control Act of 1972 (USEPA 40 CFR 201–211), all Federal agencies are required to implement programs promoting environments free from noises that potentially jeopardize public health or welfare. The Federal Highway Administration (FHWA) has developed criteria for evaluating potential noise impacts for Federally funded projects and determining whether such impacts require mitigation (23 CFR Part 772). These criteria were adopted by UDOT in its Noise Abatement Policy (UDOT 2008) and are known as the Noise Abatement Criteria (NAC). The NAC are listed in Table 1.

## **3.0 TRAFFIC NOISE EVALUATION**

### **3.1 Noise-Sensitive Receivers**

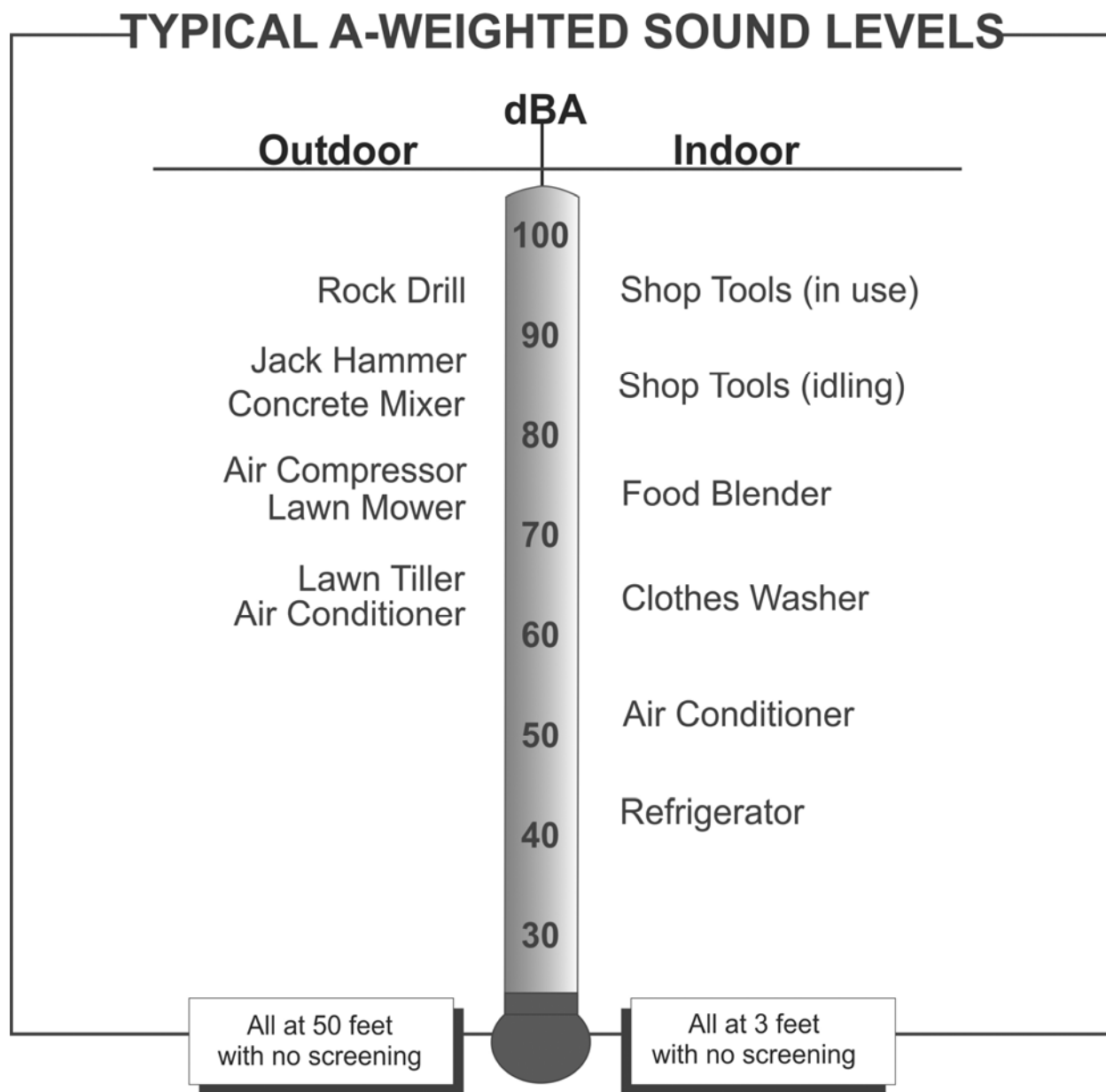
Noise-sensitive receivers are those locations where activities could be affected by increased noise levels (e.g., residences, motels, churches, schools, parks, and libraries). Noise-sensitive receivers were identified within the Project Area, all within activity category B land uses.

Noise-sensitive receivers within activity category B land uses include residences with outside areas immediately facing the Proposed Project Area, generally in front or back yards. Three areas of potential noise-sensitive receivers were identified: the area on the western side of SR-252 between 200 South Street and 600 South Street, the area on the eastern side of SR 252 between 200 South Street and 600 South Street, and the area on the eastern side of SR-252 between 600 South Street and approximately 1200 South Street (Figures 2 and 3).

A variety of commercial and industrial land uses are present in the Proposed Project Area. These land uses are considered “sensitive land uses” under the UDOT Noise Policy, but are not considered noise-sensitive receivers as “a lowered noise level would not be a benefit” due to a lack of “frequent exterior use.”

All other land uses in the Proposed Project Area are identified under activity categories C and D, and do not contain any noise-sensitive receivers. No activity category A land uses were identified in the Proposed Project Area.





**Figure 1. Typical A-Weighted Sound Levels.**

**Table 1. Noise Abatement Criteria.<sup>a</sup>**

ACTIVITY CATEGORY	LEQ(h) <sup>b</sup>	DESCRIPTION OF ACTIVITY CATEGORY
A	56 dBA <sup>c</sup> (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 dBA <sup>c</sup> (exterior)	Picnic areas, fixed recreation areas, playgrounds, active grounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	71 dBA <sup>c</sup> (exterior)	Cemeteries, commercial areas, industrial areas, office buildings, and other developed lands, properties, or activities not included in Activity Categories A or B.
D	No limit	Undeveloped lands including roadside facilities and dispersed recreation areas.
E	51 dBA <sup>c</sup> (interior)	Motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. (The interior criterion only applies when there are no exterior activities to be affected by traffic noise.)

<sup>a</sup> UDOT 2008.<sup>b</sup> Hourly equivalent sound level.<sup>c</sup> Decibels on the A-weighted scale.

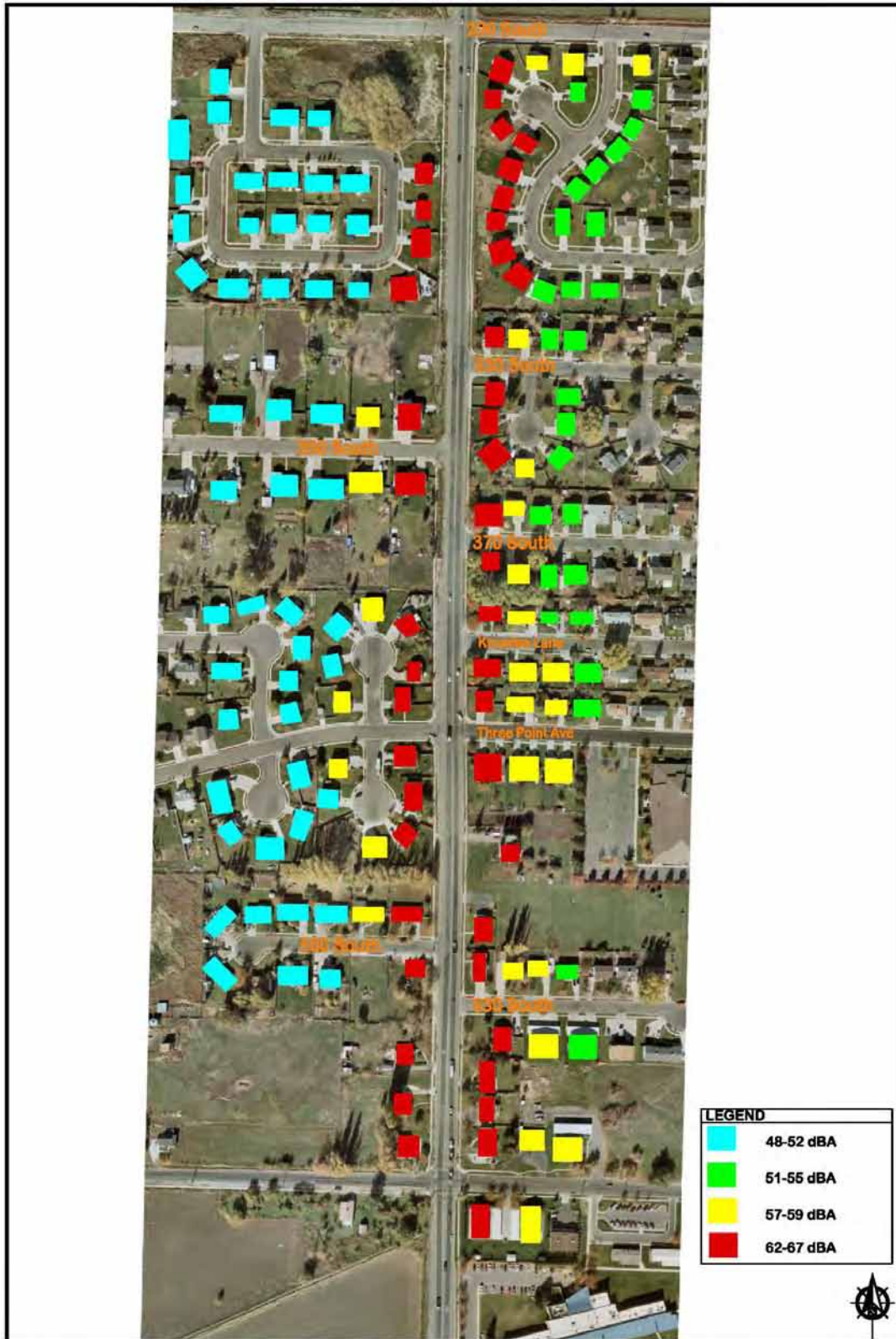
### **3.2 Existing Noise Conditions**

Because existing noise conditions are generally similar for groups of adjacent noise-sensitive receivers and because noise conditions are variable, representative samples were taken in various locations to represent the ambient noise levels for each group of noise-sensitive receivers with similar existing noise conditions. These noise levels were expressed as a decibel range that could be reasonably expected in the area, according to given noise samples. Data were modeled using the FHWA's Traffic Noise Model (TNM) and collected using a certified Quest Technologies M-26 dosimeter. Samples were collected during peak traffic periods in the summers of 2008 and 2009 using a 20-minute sampling period. During the sampling period, ambient noise sources were noted and local traffic was counted. Dominant noise sources that were observed within the Proposed Project Area included passenger vehicles on existing roadways. Additional noise sources included overhead aircraft, construction noises, and residential activities such as children playing, distant lawn mowers, and barking dogs.

Figures 2 and 3 show the range of existing ambient conditions for homes in the Proposed Project Area.

Commercial and industrial properties adjacent to the current roadway have noise levels between 58 and 62 dBA. This range is not out of character for these land uses given the types of activities present in the area (truck deliveries, machinery, etc.).

In general, existing noise conditions are moderately loud to loud for the residential properties within the Proposed Project Area. These loud ambient conditions primarily arise from close proximity to traffic on SR-252. High truck volumes resulting from industrial and commercial



**Figure 2. Existing Noise Levels in the Residential Areas between 200 South Street and 600 South Street.**



**Figure 3. Existing Noise Levels in the Residential Areas between 600 South Street and 1000 South Street.**

land uses to the north and south of the residential area are a significant contributor to these existing high noise levels.

### **3.3 Estimating Future Noise Levels**

Noise levels for traffic utilizing the Proposed Project roadway under Level of Service (LOS) C traffic conditions were modeled using version 2.5 of TNM. Level of Service C traffic conditions were used because they represent a “worst case” scenario from a noise perspective: the maximum number of vehicles traveling at the fastest speed. The FHWA TNM software predicts future noise levels based on anticipated traffic volumes by vehicle size (e.g., automobiles, light trucks, and heavy trucks), vehicle speeds, traffic-control devices, roadway geometry, and other environmental conditions. The TNM data output sheets can be found in Appendix A.

To check the accuracy of transportation noise modeling, existing conditions were modeled and compared with sampled noise data in the Project Area. These data were then entered into the TNM software to simulate existing conditions. The observed noise measurements were compared with predicted noise measurements to determine the accuracy of the TNM. Results indicated that the difference between modeled and observed noise levels is within an acceptable range of accuracy and that the TNM is effective in modeling noise based on traffic parameters.

#### **3.3.1 Data Inputs**

Generalized daily traffic capacities for arterial-type roads were estimated using ARTPLAN software. This method is consistent with the standards and methods of the *2000 Highway Capacity Manual* (TRB 2000) for arterial facilities within in an urban area and free-flow speeds of 45 miles per hour (mph) or less. The level of service (LOS) C hourly volumes were based on these capacities and estimated from the daily volume with a directional distribution of 50/50, which is consistent with UDOT documentation (TRB 2000).

*Truck Traffic on Utah Highways* (UDOT 2007) and existing traffic data obtained from traffic counts were used to estimate the Proposed Project roadway’s projected vehicle mix. The vehicle mix used in traffic noise modeling was 90 percent automobiles, 3 percent medium trucks, and 7 percent heavy trucks.

Speeds on the Proposed Project roadway were estimated to be 30 mph through the residential area with higher speeds as currently posted on each end of the residential area (50 mph south; 40 mph north). All geographic features, including the proposed alignment, noise-sensitive receiver locations, and buildings, were located using scaled drawings and rectified photographs and included in the noise modeling. Topographical data included berms, dikes, and vegetation present in the Proposed Project Area.



## **3.4 Impact Analysis**

### ***3.4.1 Impact Analysis Criteria***

The UDOT considers a traffic-noise impact to occur when either of the following situations is expected at a noise-sensitive land use.

1. The design noise level is  $\geq$  the UDOT NAC for each corresponding land-use category (Table 1).
2. The design noise level is  $\geq$  an increase of 10 dBA over the existing noise level. This impact criterion takes effect regardless of existing noise levels. Existing noise levels are defined as the noise levels (present conditions) at a noise-sensitive receiver prior to the addition of travel lanes or new construction on the adjacent transportation facility. A 10 dBA increase is perceived by most people as a doubling of noise loudness.

### ***3.4.2 Identification of Impacts***

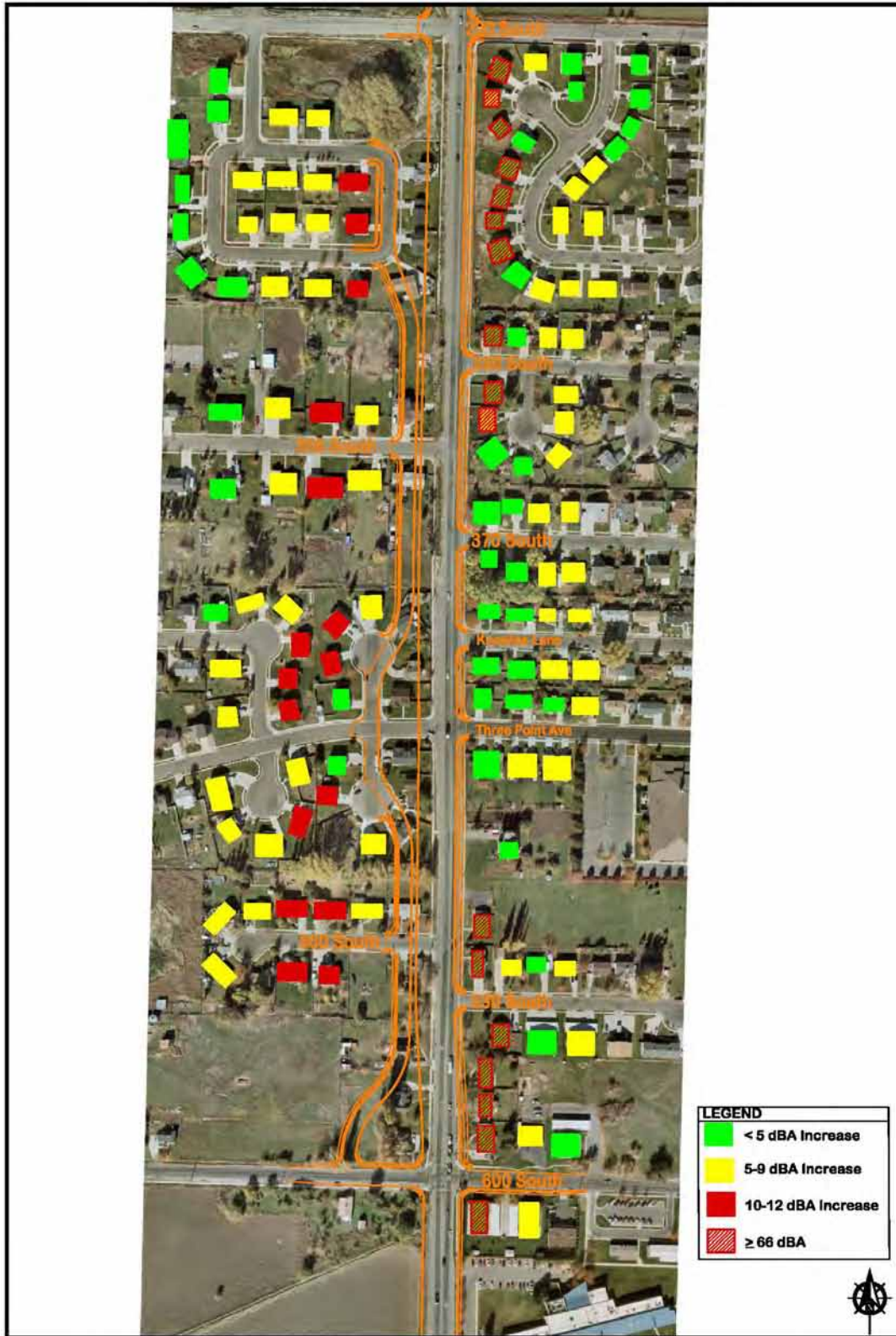
The TNM was used to model future (2030) noise levels in the residential areas. It should be noted that the TNM software estimates future traffic noise but does not estimate any other noise input such as wind, children playing, dogs barking, or lawnmowers. For this reason, some estimated future traffic noise levels may actually be quieter than existing, ambient noise levels. Figures 4 and 5 and Table 2 show potential 2030 levels of traffic noise in the residential areas.

As noted in Figures 4 and 5 and in Table 2, some residences are expected to be impacted by noise. These noise impacts would occur from both increases of 10 dBA or more over existing conditions and from increases above 66 dBA as noted in the NAC. Although noise levels would increase for almost all homes adjacent to the roadway, road noise would be particularly acute for residents on the western side of SR-252 directly behind the homes that would be removed for construction of a frontage road. These residences are currently screened from traffic noise by the homes that would be removed. As the homes are removed, traffic noise would travel further into the neighborhood and impact residents that would likely not be otherwise impacted. Table 3 presents a summary of noise impacts anticipated under Level of Service C (LOS C) traffic conditions.

Commercial areas were also modeled for noise increases under LOS C conditions. Results indicate that noise levels would increase from 58–62 dBA to 62–67 dBA. These areas are consistent with activity category C from the NAC (Table 1). Noise levels at these commercial properties would not increase by 10 dBA and would not reach 71 dBA. Although noise would increase, the increases would not be sufficient to constitute an impact to the commercial and industrial properties in the Proposed Project Area.

## **3.5 Noise Abatement**

According to UDOT noise policies, specific conditions must be met before traffic noise abatement is likely to be implemented as part of the Proposed Project. In general, traffic noise must exceed the NAC and noise abatement must be considered reasonable and feasible. Measures of reasonableness



**Figure 4. Potential Noise Increases to Residences in Areas between 200 South Street and 600 South Street.**



**Figure 5. Potential Noise Increases to Residences in Areas between 600 South Street and 1000 South Street.**

**Table 2. Traffic Noise Increases from the Proposed Project Under Level of Service C traffic conditions.**

dBA	200 SOUTH STREET TO 600 SOUTH STREET AREA <sup>a</sup>		600 SOUTH STREET TO 1000 SOUTH STREET AREA <sup>a</sup>
	East	West	East
< 5 increase	42	12	22
5–9 increase	30	12	26
10–12 increase	0	16	0
≥ 66 <sup>b</sup>	17	0	14

<sup>a</sup> As shown in Figures 5 and 6.

<sup>b</sup> Residences with increases ≥ 66 dBA are also represented by other increases. As such, these numbers should not be considered cumulatively.

**Table 3. Summary of Traffic Noise Impacts for Level of Service C Traffic Conditions.**

NOISE IMPACTS <sup>a</sup>	EAST	WEST
200 South Street–600 South Street	16 residences	17 residences
600 South Street–1000 South Street	14 residences	None

<sup>a</sup> Noise level is > or = to an increase of 10 dBA over the existing noise level, or noise conditions reach 66 dBA.

and feasibility, as well as other criteria for abatement, are outlined in UDOT's Noise Abatement Policy (UDOT 2008).

Factors that determine eligibility for noise abatement, and how these factors are met by the Proposed Project, are outlined briefly in Table 4.

As noted in Table 4, a noise wall would not provide effective abatement on the eastern side of SR-252 through the residential area. In general, effective noise abatement measures are difficult to implement in urban residential settings. Access points create “holes” that severely reduce the effectiveness of abatement measures. Analysis determined that too many access points exist on the eastern side of SR-252 for a noise wall to function.

On the western side of the roadway, the Proposed Project would block off several access points and create a new frontage road. Eight-, ten-, and twelve-foot-high noise walls were modeled to determine if they could provide abatement for residents. Modeling indicated that only a 12-foot-high uninterrupted noise wall from 600 South Street to 200 South Street (on the western side of the road) would be sufficient to provide abatement for 75 percent of first-row impacted residents. However, both UDOT and the City of Logan restrict installation of walls to 8 feet in urban residential settings. As a result, noise abatement is not considered reasonable or feasible.

**Table 4. Noise Abatement Eligibility Factors.**

<b>FEASIBLE AND REASONABLE DETERMINATION FACTORS</b>	<b>EAST</b>	<b>WEST</b>
<b>Are accesses (driveways, cross streets) limited to a degree that a noise wall could function to reduce noise levels?</b>	No. The majority of the east side of the road is dominated by driveways and cross streets, creating “holes” that would allow noise impacts to occur anyway. A noise wall in these areas would not actually block noise and would not be feasible. However, areas on the east side between 200 South Street and 330 South Street and immediately north and south of Rainbow drive were also evaluated for noise wall feasibility. Results indicated that only a 12-foot high noise wall would reduce noise for some residents.	Yes. The area from 200 South Street to 600 South Street limits access to a degree that a noise wall could function to reduce noise.
<b>Would installation of a noise wall reduce noise by at least 5 dBA for 75 percent of front-row receivers?</b>	Between 200 South Street and 330 South Street, a 12-foot continuous noise wall would decrease traffic noise by 5 dBA for 70 percent of front row receivers. A continuous 12-foot noise wall immediately north of Rainbow Drive would decrease traffic noise by 5 dBA for 80 percent of front row receivers. A continuous 12-foot noise wall immediately south of Rainbow Drive would decrease traffic noise by 5 dBA for 40 percent of front row receivers. However, a 12-foot noise wall would violate UDOT (2008) Noise Abatement Policy and City of Logan ordinances (Logan City Land Development Code 17.15.060).	Yes. Between 200 South Street and 600 South Street a 12-foot continuous noise wall would decrease traffic noise by at least 5dBA for 100 percent of front row receivers. However, a 12-foot noise wall would violate UDOT (2008) noise abatement policy and City of Logan ordinances (Logan City Land Development Code 17.15.060).
<b>Would a noise wall 8 feet or less in height, per UDOT policy, provide at least a 5-dBA decrease in noise?</b>	No. An 8-foot noise wall would not provide any receivers with a 5-dBA decrease in noise. Walls would need to be at least 12-feet high to provide a 5-dBA noise decrease..	No. An 8-foot noise wall would not provide any receivers with a 5-dBA decrease in noise. Walls would need to be at least 12-feet high to provide a 5-dBA noise decrease.
<b>Would a noise wall be consistent with land use and zoning per City of Logan Land Development Code?</b>	No. City of Logan ordinances only allow walls up to 8 feet high (Logan City Land Development Code 17.15.060)	No. City of Logan ordinances only allow walls up to 8 feet high (Logan City Land Development Code 17.15.060)
<b>Would a noise wall cost \$30,000 or less per noise receiver according to UDOT noise policy?</b>	Costs were not evaluated; no forms of abatement were considered feasible because UDOT policy and Logan City Ordinances prohibit use of walls greater than 8 feet high.	Costs were not evaluated; no forms of abatement were considered feasible because UDOT policy and Logan City Ordinances prohibit use of walls greater than 8 feet high.



## **4.0 RECOMMENDATIONS**

Existing Leq(h)s in the Proposed Project Area are moderately high to high for urban residential settings. Although noise impacts would occur from traffic noise for some receivers under LOS C, no noise-abatement measures would be feasible, and no noise-abatement measures are recommended.

## 5.0 REFERENCES

- [TRB] Transportation Research Board, Committee on Highway Capacity and Quality of Service. 2000. 2000 Highway Capacity Manual. Washington (D.C.): Transportation Research Board of the National Academies. 1134 p.
- [UDOT] Utah Department of Transportation. 2007. Truck traffic on Utah highways. Report on annual daily traffic. Salt Lake City: Utah Department of Transportation. 89 p.
- [UDOT] Utah Department of Transportation. 2008. Noise Abatement Policy. UDOT 08A2-1. Effective November 6, 1987. Revised October 2008. Salt Lake City: Utah Department of Transportation. 18 p.

## **APPENDIX A: NOISE DATA SHEETS**

## 10th W

11 February 2010

## TNM 2.5

d with TNM 2.5

## PROJECT/CONTRACT:

10th W

10 W 2030 NE rur

## INPUT HEIGHTS

68 deg F, 50% RH

**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**

G:\1000 WEST\Noise Sampling\Final Runs\NE30mph

## RESULTS: SOUND LEVELS

10th W

Receiver108	108	1	0.0	65.8	66	65.8	66	65.8	10	----	65.8	8	-8.0
Receiver109	109	1	0.0	63.2	66	63.2	66	63.2	10	----	63.2	8	-8.0
Receiver110	110	1	0.0	60.8	66	60.8	66	60.8	10	----	60.8	8	-8.0
Receiver111	111	1	0.0	59.1	66	59.1	66	59.1	10	----	59.1	8	-8.0
Receiver112	112	1	0.0	69.0	66	69.0	66	69.0	10	Snd Lvl	69.0	8	-8.0
Receiver113	113	1	0.0	70.2	66	70.2	66	70.2	10	Snd Lvl	70.2	8	-8.0
Receiver114	114	1	0.0	65.4	66	65.4	66	65.4	10	----	65.4	8	-8.0
Receiver115	115	1	0.0	61.5	66	61.5	66	61.5	10	----	61.5	8	-8.0
Receiver116	116	1	0.0	59.1	66	59.1	66	59.1	10	----	59.1	8	-8.0
Receiver117	117	1	0.0	58.9	66	58.9	66	58.9	10	----	58.9	8	-8.0
Receiver118	118	1	0.0	59.2	66	59.2	66	59.2	10	----	59.2	8	-8.0
Receiver119	119	1	0.0	65.4	66	65.4	66	65.4	10	----	65.4	8	-8.0
Receiver120	120	1	0.0	63.0	66	63.0	66	63.0	10	----	63.0	8	-8.0
Receiver121	121	1	0.0	61.0	66	61.0	66	61.0	10	----	61.0	8	-8.0
Receiver122	122	1	0.0	59.1	66	59.1	66	59.1	10	----	59.1	8	-8.0
Receiver123	123	1	0.0	64.5	66	64.5	66	64.5	10	----	64.5	8	-8.0
Receiver124	124	1	0.0	62.8	66	62.8	66	62.8	10	----	62.8	8	-8.0
Receiver125	125	1	0.0	60.6	66	60.6	66	60.6	10	----	60.6	8	-8.0
Receiver126	126	1	0.0	59.0	66	59.0	66	59.0	10	----	59.0	8	-8.0
Receiver127	127	1	0.0	64.7	66	64.7	66	64.7	10	----	64.7	8	-8.0
Receiver128	128	1	0.0	62.5	66	62.5	66	62.5	10	----	62.5	8	-8.0
Receiver129	129	1	0.0	60.7	66	60.7	66	60.7	10	----	60.7	8	-8.0
Receiver130	130	1	0.0	59.0	66	59.0	66	59.0	10	----	59.0	8	-8.0
Receiver131	131	1	0.0	69.7	66	69.7	66	69.7	10	Snd Lvl	69.7	8	-8.0
Receiver132	132	1	0.0	63.5	66	63.5	66	63.5	10	----	63.5	8	-8.0
Receiver133	133	1	0.0	60.9	66	60.9	66	60.9	10	----	60.9	8	-8.0
Receiver135	135	1	0.0	65.1	66	65.1	66	65.1	10	----	65.1	8	-8.0
Receiver136	136	1	0.0	62.5	66	62.5	66	62.5	10	----	62.5	8	-8.0
Receiver138	138	1	0.0	60.4	66	60.4	66	60.4	10	----	60.4	8	-8.0
Receiver139	139	1	0.0	58.6	66	58.6	66	58.6	10	----	58.6	8	-8.0
Receiver140	140	1	0.0	65.1	66	65.1	66	65.1	10	----	65.1	8	-8.0
Receiver141	141	1	0.0	63.0	66	63.0	66	63.0	10	----	63.0	8	-8.0
Receiver142	142	1	0.0	60.6	66	60.6	66	60.6	10	----	60.6	8	-8.0
Receiver143	143	1	0.0	58.8	66	58.8	66	58.8	10	----	58.8	8	-8.0
Receiver144	144	1	0.0	64.2	66	64.2	66	64.2	10	----	64.2	8	-8.0
Receiver145	145	1	0.0	68.5	66	68.5	66	68.5	10	Snd Lvl	68.5	8	-8.0
Receiver146	146	1	0.0	68.4	66	68.4	66	68.4	10	Snd Lvl	68.4	8	-8.0
Receiver147	147	1	0.0	65.3	66	65.3	66	65.3	10	----	65.3	8	-8.0
Receiver148	148	1	0.0	62.7	66	62.7	66	62.7	10	----	62.7	8	-8.0
Receiver149	149	1	0.0	60.8	66	60.8	66	60.8	10	----	60.8	8	-8.0



**RESULTS: SOUND LEVELS**

10th W

Receiver150	150	1	0.0	61.0	66	61.0	10	****	61.0	0.0	8	-8.0
Receiver151	151	1	0.0	63.1	66	63.1	10	****	63.1	0.0	8	-8.0
Receiver152	152	1	0.0	65.8	66	65.8	10	****	65.8	0.0	8	-8.0
Receiver153	153	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
Receiver154	154	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
Receiver155	155	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
Receiver156	156	1	0.0	64.9	66	64.9	10	****	64.9	0.0	8	-8.0
Receiver157	157	1	0.0	61.5	66	61.5	10	****	61.5	0.0	8	-8.0
<b>Dwelling Units</b>												
		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		71	0.0	0.0	0.0							
All Impacted		15	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

## RESULTS: SOUND LEVELS

10th W

BW

11 February 2010

K. Sim

TNM 2.5

Calculated with TNM 2.5

## RESULTS: SOUND LEVELS

## PROJECT/CONTRACT:

10th W

RUN: 1000 W 2030 SE run (30mph, no wall)

## BARRIER DESIGN:

INPUT HEIGHTS

## ATMOSPHERICS:

68 deg F, 50% RH

Average pavement type shall be used unless  
a State highway agency substantiates the use  
of a different type with approval of FHWA.

Receiver														
Name	No.	#DUs	Existing		No Barrier		Increase over existing		Type		With Barrier		Calculated minus Goal	
			L <sub>Aeq1h</sub>	dBA	L <sub>Aeq1h</sub>	dBA	Calculated	Crit'n	Calculated	Crit'n	Impact	L <sub>Aeq1h</sub>		dBA
				dBA	dBA	dBA	dB	dB	dB			dBA	dB	dB
Receiver159	159	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0		
Receiver160	160	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0		
Receiver161	161	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0		
Receiver162	162	1	0.0	61.9	66	61.9	10	----	61.9	0.0	8	-8.0		
Receiver163	163	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0		
Receiver164	164	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0		
Receiver165	165	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0		
Receiver166	166	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0		
Receiver167	167	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0		
Receiver168	168	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0		
Receiver169	169	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0		
Receiver170	170	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0		
Receiver171	171	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0		
Receiver172	172	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0		
Receiver173	173	1	0.0	59.4	66	59.4	10	----	59.4	0.0	8	-8.0		
Receiver174	174	1	0.0	59.9	66	59.9	10	----	59.9	0.0	8	-8.0		
Receiver175	175	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0		
Receiver176	176	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0		
Receiver177	177	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0		
Receiver178	178	1	0.0	60.5	66	60.5	10	----	60.5	0.0	8	-8.0		
Receiver179	179	1	0.0	58.5	66	58.5	10	----	58.5	0.0	8	-8.0		
Receiver180	180	1	0.0	59.9	66	59.9	10	----	59.9	0.0	8	-8.0		
Receiver181	181	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0		

G:\1000 WESTNoise Sampling\Final Runs\SE30mph

1

11 February :

**RESULTS: SOUND LEVELS**

10th W

Receiver182	182	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
Receiver183	183	1	0.0	58.8	66	58.8	10	----	58.8	0.0	8	-8.0
Receiver184	184	1	0.0	60.7	66	60.7	10	----	60.7	0.0	8	-8.0
Receiver185	185	1	0.0	62.2	66	62.2	10	----	62.2	0.0	8	-8.0
Receiver186	186	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
Receiver187	187	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
Receiver188	188	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
Receiver189	189	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
Receiver190	190	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
Receiver191	191	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
Receiver192	192	1	0.0	58.0	66	58.0	10	----	58.0	0.0	8	-8.0
Receiver193	193	1	0.0	59.0	66	59.0	10	----	59.0	0.0	8	-8.0
Receiver194	194	1	0.0	58.2	66	58.2	10	----	58.2	0.0	8	-8.0
Receiver195	195	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
Receiver196	196	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
Receiver197	197	1	0.0	56.4	66	56.4	10	----	56.4	0.0	8	-8.0
Receiver199	199	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
<b>Dwelling Units</b>												
		# DUs	Noise Reduction									
			Min	Avg								
			dB	dB								
					Max							
					dB							
All Selected		40	0.0	0.0	0.0							
All Impacted		14	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

## RESULTS: SOUND LEVELS

10th W

BW

11 February 2010

K. Sim

TNM 2.5

Calculated with TNM 2.5

## RESULTS: SOUND LEVELS

## PROJECT/CONTRACT:

10th W

10 W 2030 W Side run (30mph, no wall)

INPUT HEIGHTS

## BARRIER DESIGN:

68 deg F, 50% RH

Average pavement type shall be used unless  
a State highway agency substantiates the use  
of a different type with approval of FHWA.

## ATMOSPHERICS:

Receiver															
Name	No.	#DUs	Existing		No Barrier		Increase over existing			With Barrier		Noise Reduction		Calculated minus Goal	
			L Aeq1h	dBA	L Aeq1h	dBA	Calculated	Crit'n	Sub'l Inc	Type Impact	Calculated L Aeq1h	dBA	dB	Calculated	Goal
Receiver28	28	1	0.0	59.0	66	59.0	66	59.0	10	----	59.0	59.0	0.0	8	-8.0
Receiver29	29	1	0.0	57.7	66	57.7	66	57.7	10	----	57.7	57.7	0.0	8	-8.0
Receiver30	30	1	0.0	54.8	66	54.8	66	54.8	10	----	54.8	54.8	0.0	8	-8.0
Receiver31	31	1	0.0	54.8	66	54.8	66	54.8	10	----	54.8	54.8	0.0	8	-8.0
Receiver32	32	1	0.0	53.2	66	53.2	66	53.2	10	----	53.2	53.2	0.0	8	-8.0
Receiver33	33	1	0.0	53.5	66	53.5	66	53.5	10	----	53.5	53.5	0.0	8	-8.0
Receiver34	34	1	0.0	56.1	66	56.1	66	56.1	10	----	56.1	56.1	0.0	8	-8.0
Receiver35	35	1	0.0	57.2	66	57.2	66	57.2	10	----	57.2	57.2	0.0	8	-8.0
Receiver36	36	1	0.0	58.9	66	58.9	66	58.9	10	----	58.9	58.9	0.0	8	-8.0
Receiver37	37	1	0.0	61.6	66	61.6	66	61.6	10	----	61.6	61.6	0.0	8	-8.0
Receiver38	38	1	0.0	60.7	66	60.7	66	60.7	10	----	60.7	60.7	0.0	8	-8.0
Receiver39	39	1	0.0	59.3	66	59.3	66	59.3	10	----	59.3	59.3	0.0	8	-8.0
Receiver40	40	1	0.0	57.5	66	57.5	66	57.5	10	----	57.5	57.5	0.0	8	-8.0
Receiver41	41	1	0.0	56.2	66	56.2	66	56.2	10	----	56.2	56.2	0.0	8	-8.0
Receiver42	42	1	0.0	53.5	66	53.5	66	53.5	10	----	53.5	53.5	0.0	8	-8.0
Receiver43	43	1	0.0	53.8	66	53.8	66	53.8	10	----	53.8	53.8	0.0	8	-8.0
Receiver44	44	1	0.0	55.2	66	55.2	66	55.2	10	----	55.2	55.2	0.0	8	-8.0
Receiver45	45	1	0.0	56.9	66	56.9	66	56.9	10	----	56.9	56.9	0.0	8	-8.0
Receiver46	46	1	0.0	59.3	66	59.3	66	59.3	10	----	59.3	59.3	0.0	8	-8.0
Receiver47	47	1	0.0	62.2	66	62.2	66	62.2	10	----	62.2	62.2	0.0	8	-8.0
Receiver48	48	1	0.0	62.0	66	62.0	66	62.0	10	----	62.0	62.0	0.0	8	-8.0
Receiver49	49	1	0.0	59.8	66	59.8	66	59.8	10	----	59.8	59.8	0.0	8	-8.0
Receiver50	50	1	0.0	57.2	66	57.2	66	57.2	10	----	57.2	57.2	0.0	8	-8.0

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## 10th W

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